# On the Investment Network and Development Online Appendix

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August 2024

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#### **Additional robustness** 1

Comparisons to the investment network estimates in ?.

Table 1: Investment Network Outdegrees: Comparison with vom Lehn and Winberry (2022)

(a) 1972			<b>(b)</b> 1992		
Sector	This Paper	VLW	Sector	This Paper	VLW
Agriculture	0.00	0.00	Agriculture	0.00	0.00
Construction	2.72	2.12	Construction	2.12	1.57
Durables	0.48	0.29	Durables	0.42	0.35
Electronics	0.67	0.70	Electronics	1.10	1.06
ICT	1.11	2.24	ICT	2.18	3.16
Machinery	2.08	2.42	Machinery	1.57	1.83
Nondurables	0.16	0.03	Nondurables	0.15	0.04
Services	0.80	0.51	Services	0.93	0.66
Transportation	1.84	1.60	Transportation	1.42	1.26
Transportation Services	0.14	0.08	Transportation Services	0.10	0.06

(a) 1972 (h) 1007

Notes: Comparison between investment network estimates in benchmark years 1972 and 1992. This table reports the row sum of the networks, outdegrees.

<b>(a)</b> 1972			<b>(b)</b> 1992			
Sector	This Paper	VLW	Sector	This Paper	VLW	
Agriculture	0.00	0.00	Agriculture	0.00	0.00	
Construction	0.04	0.13	Construction	0.02	0.14	
Durables	0.06	0.04	Durables	0.05	0.4	
Electronics	0.11	0.07	Electronics	0.14	0.10	
ICT	0.08	0.32	ICT	0.20	0.47	
Machinery	0.31	0.23	Machinery	0.21	0.17	
Nondurables	0.07	0.01	Nondurables	0.07	0.01	
Services	0.04	0.04	Services	0.05	0.05	
Transportation	0.18	0.04	Transportation	0.11	0.04	
Transportation Services	0.04	0.01	Transportation Services	0.03	0.00	

#### Table 2: Investment Network Homophily: Comparison with vom Lehn and Winberry (2022)

Notes: Comparison between investment network estimates in benchmark years 1972 and 1992. This table reports the weight of the diagonal in the network, homophily.

	Table 3: Investment Network 41	Sectors: Com	parison with v	vom Lehn and	Winberry	(2022)
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(a)	Outdegrees
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#### (b) Homophiily

VLW Sector	Sector Description	This Paper	VLW	VLW Sector	This Paper	VLW
1	Agriculture, forestry, fishing, and hunting	0.00	0.00	1	0.00	0.00
2	Oil and gas extraction	0.00	0.00	2	0.00	0.00
3	Mining, except oil and gas	0.00	0.01	3	0.00	0.00
4	Support activities for mining	2.41	1.37	4	0.25	0.10
5	Utilities	0.00	0.00	5	0.00	0.00
6	Construction	5.18	6.34	6	0.00	0.03
7	Wood products	0.12	0.01	7	0.05	0.00
8	Nonmetallic mineral products	0.00	0.00	8	0.00	0.00
9	Primary metals	0.00	0.00	9	0.00	0.00
10	Fabricated metal products	0.28	0.40	10	0.01	0.08
11	Machinery	4.99	7.77	11	0.16	0.26
12	Computer and electronic products	2.80	2.19	12	0.09	0.06
13	Electrical equipment, appliances, and components	0.60	0.33	13	0.02	0.06
14	Motor vehicles, bodies and trailers, and parts	3.44	2.48	14	0.06	0.02
15	Other transportation equipment	0.91	0.70	15	0.02	0.10
16	Furniture and related products	0.37	0.57	16	0.01	0.04
17	Miscellaneous manufacturing	0.50	0.56	17	0.02	0.04
18	Food and beverage and tobacco products	0.00	0.00	18	0.00	0.00
19	Textile mills and textile product mills	0.05	0.02	19	0.01	0.00
20	Apparel and leather and allied products	0.00	0.00	20	0.00	0.00
21	Paper products	0.00	0.00	21	0.00	0.00
22	Printing and related support activities	0.00	0.00	22	0.00	0.00
23	Petroleum and coal products	0.00	0.00	23	0.00	0.00
24	Chemical products	0.12	0.10	24	0.04	0.00
25	Plastics and rubber products	0.00	0.01	25	0.00	0.00
26	Wholesale trade	5.08	3.67	26	0.11	0.10
27	Retail trade	0.75	0.87	27	0.01	0.05
28	Transportation and warehousing	0.46	0.46	28	0.04	0.01
29	Information	2.50	1.97	29	0.20	0.27
30	Finance and insurance	0.01	0.00	30	0.00	0.00
31	Real estate	0.11	0.03	31	0.01	0.03
32	Rental and Leasing Services	0.00	0.00	32	0.00	0.00
33	Professional and technical services	10.26	11.10	33	0.28	0.59
34	Management of companies and enterprises	0.00	0.00	34	0.00	0.00
35	Administrative, waste management	0.00	0.00	35	0.00	0.00
36	Educational services	0.00	0.00	36	0.00	0.00
37	Health Services	0.00	0.00	37	0.00	0.00
38	Arts, entertainment, and recreation services	0.06	0.03	38	0.00	0.02
39	Accommodation services	0.00	0.00	39	0.00	0.00
40	Food services	0.00	0.00	40	0.00	0.00
41	Other services, except government	0.00	0.00	41	0.00	0.00

Notes: Comparison between investment network estimates for 41 sectors in VLW in year 2012, corresponding to the year in which we fix the occupational composition of the labor force. This table reports the row sum of the networks, *outdegrees*, as well as the weight of the diagonal in the network, *homophily*.

## 2 Standard Development Accounting

We run a series of development accounting exercises to benchmark the magnitude of our main finding, that 32.5% of income disparities across countries can be explained by disparities in the investment network.

We follow the benchmark specification in ? and account for the contribution of measured capital-output ratios, adjusted by capital-output elasticities, i.e.  $\left(\frac{k}{y}\right)^{\frac{\alpha}{1-\alpha}}$ , as the ratio between its difference to the US and the overall output disparity. So for example, is a country is 4 times poorer than the US and its measured capital output ratio is 2 times smaller, its contribution to output disparities is one half. Figure 1 reports these contributions in each country in our sample using data from Penn World Tables 10.<sup>1</sup> On average, measured disparities in capital account for 13% of income disparities. We can alternatively compute other two statistics widely available

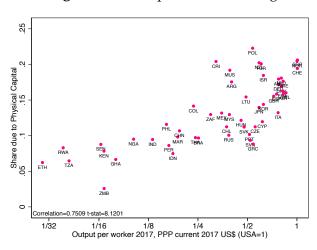


Figure 1: Development Accounting

Notes: Levels of income per capita relative to the US in 2017. Share of income disparities accounted for by measured disparities in capital-output ratios,  $\left(\frac{k}{u}\right)^{\frac{\alpha}{1-\alpha}}$  for  $\alpha = 0.3$ .

in the literature. The first one answers the question of what would be the income disparities if capital-output ratios were equalized across countries. This corresponds to the ratio of the variance of income in an economy with no disparities in capital-output ratios and the observed variance of income. This is measure *success1* in **?**. We find that the variance in capital account for 7% of the observed variance in output per worker in our sample.

Finally, we can alternatively compute a slightly different contribution which accounts for the systematic correlation between output-per-worker and capital-output ratios and that is closer to a variance decomposition exercise, **?**. If we measure the ratio of the sum between the variance of capital output ratios and its covariance with output, over the observed variance in output per worker, we find that 17% of the observed disparities can be accounted for by capital.

<sup>&</sup>lt;sup>1</sup>These results are consistent with those obtained using output per hour, although hours is missing for many of the poorest countries in our sample and we therefore benefit output per worker instead.

## 3 Additional Proofs & Derivations

#### 3.0.1 Closed economy.

Let the Domar weight of sector *n* be  $\eta_n \equiv \frac{p_n y_n}{pv}$ , let the share of value added allocated to the production of final goods be  $\zeta_n \equiv \frac{p_n c_n}{pv}$  and the value added share of each sector be  $\tilde{\zeta}_n \equiv \zeta_n + \frac{p_n \chi_n^d}{pv}$ .

**Proposition .1.** The equilibrium Domar weights are functions of sectorial investment rate.

$$\left[I - \Gamma \alpha \Omega - (1 - \Gamma)M\right]^{-1} \zeta \equiv \eta \tag{1}$$

or in vector form

$$\eta_n = \zeta_n + \sum_{i=1}^N \alpha_i \gamma_i \omega_{ni} \eta_i + \sum_{j=1}^N (1 - \gamma_j) \mu_{nj} \eta_j.$$

*Proof Proposition .1.* Use the optimality conditions of the firm, to rewrite the expenses in different intermediate and investment goods as a function of gross output, i.e.

$$\mu_{ni}(1 - \gamma_i)p_{it}y_{it} = p_{nt}m_{nit}$$
$$\alpha_i\gamma_ip_{it}y_{it} = r_{it}k_{it}$$
$$\omega_{ji}p_{it}^x x_{it} = p_{jt}\chi_{jit}$$

By no arbitrage, the user cost of capital satisfies,

$$r_{it} = p_{it-1}^{x} \left[ \frac{1}{R_t} - (1 - \hat{\delta}_i) \frac{p_{it}^{x}}{p_{it-1}^{x}} \right]$$

where  $1 - \hat{\delta}_i$  corresponds to the adjusted undepreciated value of a unit of capital adjusted along the BGP, i.e.  $1 - \hat{\delta}_i \equiv \frac{1 - \delta_i}{1 + g_i^k}$ .

Combining the optimality conditions for capital and investment

$$\alpha_i \gamma_i p_{it} y_{it} = \left[ \frac{1}{R_t} - (1 - \hat{\delta}_i) \frac{p_{it}^x}{p_{it-1}^x} \right] \frac{p_{jt-1} \chi_{jit-1}}{\omega_{ji}} \frac{x_{it}}{x_{it-1}} \frac{k_{it}}{x_{it}},$$

which we can use to write the feasibility constraint in each sector *n*,

$$p_{nt}y_{nt} = p_{nt}c_{nt} + \sum_{i} p_{nt}\chi_{nit} + \sum_{j} p_{nt}m_{njt}$$

We can rewrite this condition as

$$\zeta_{nt} \frac{y_{nt}}{c_{nt}} = \zeta_{nt} + \sum_{i} \frac{\alpha_{i} \gamma_{i} \omega_{ni}}{\frac{1}{\beta} - (1 - \hat{\delta}_{i}) \frac{p_{it+1}^{x}}{p_{it}^{x}}} \frac{x_{it+1}}{k_{it+1}} \frac{x_{it}}{x_{it+1}} \frac{p_{it+1} y_{it+1}}{p_{it} y_{it}} \zeta_{it} \frac{y_{it}}{c_{it}} + \sum_{j} (1 - \gamma_{j}) \mu_{njt} \zeta_{jt} \frac{y_{jt}}{c_{jt}}$$

The above define a system of equations across sectors that can be solved for the Domar weights  $\eta_{nt} \equiv \zeta_{nt} \frac{y_{nt}}{c_{nt}}$ , given investment rates in each sector  $\frac{x_{it+1}}{k_{it+1}}$  and the growth rates of nominal

gross output,  $g_{p_iy_i}$  and investment,  $g_{x_i}$ . Note that the equilibrium Domar weight depends on the full path of output by sector, as well as the investment rates.<sup>2</sup>

That is, the solution to the equilibrium Domar weight depends directly on the path of the growth rates of the Domar weights and the investment growth rates.

$$\left[I - \frac{1}{\frac{1}{R_t} - \frac{1 - \delta_i}{1 + g^k} \frac{p_{it+1}^x}{p_{it}^x}} \Gamma \alpha \Omega \frac{\mathbf{x_{t+1}}}{\mathbf{k_{t+1}}} \frac{g_{\eta_{t+1}}}{\mathbf{g_{x_{t+1}}}} - (1 - \Gamma) M_t\right]^{-1} \boldsymbol{\zeta}_t \equiv \eta_t$$
(2)

Along an BGP the Domar weight is a constant and the investment rate is proportional to the discount factor.<sup>3</sup> The adjustment factor along the BGP is then  $\tilde{\beta} = \frac{\frac{1}{\beta} - (1 - \hat{\delta}_i)}{\hat{\delta}_i}$ .

**Proposition .2.** The BGP level of value added in the economy satisfies

$$\ln(\nu) = \tilde{\eta}' \Gamma \boldsymbol{z} - \tilde{\eta}' \Gamma(1-\alpha) \ln(\Gamma(1-\alpha)\boldsymbol{\eta}),$$

or in vector form

$$\ln(\nu) = \sum_{n} \tilde{\eta_n} \gamma_n z_n - \ln(\sum_{n} \gamma_n (1 - \alpha_n) \eta_n) \sum_{n} \tilde{\eta_n} \gamma_n (1 - \alpha_n).$$

*Proof Proposition* .2. Use the solution and the definition of  $\zeta_{it}$  to solve for relative prices, given investment rates.

$$\frac{p_{it}}{p_{jt}} = \frac{c_{jt}}{c_{it}}\frac{\zeta_{it}}{\zeta_{jt}} = \frac{\eta_{it}}{\eta_{jt}}\frac{y_{jt}}{y_{it}}$$

These relative prices are useful to define the demand for intermediate inputs, investment and labor, as a function of the vector of sectorial gross output. The demand for intermediate inputs follows  $(1 - \gamma_i) \frac{\eta_{it}}{\eta_{nt}} y_{nt} = m_{nit}$ , while the demand for investment goods is

$$\frac{x_{it+1}}{k_{it+1}}\frac{x_{it}}{x_{it+1}}\frac{\omega_{ji}\alpha_i\gamma_i}{\frac{1}{R_t}-(1-\delta_i)\frac{p_{it+1}^x}{p_{it}^x}}\frac{\eta_{it+1}}{\eta_{j_t}}y_{j_t}=\chi_{jit}$$

Total investment in sector *i* defines the level of the stock of capital as

$$x_{it} = \prod_{j} \left( \frac{x_{it}}{k_{it+1}} \frac{\alpha_i \gamma_i}{\frac{1}{R_t} - (1 - \delta_i) \frac{p_{it+1}^x}{p_{it}^x}} \frac{\eta_{it+1}}{\eta_{jt}} y_{jt} \right)^{\omega_{jit}} \quad \text{or} \quad k_{it+1} = \prod_{j} \left( \frac{\alpha_i \gamma_i}{\frac{1}{R_t} - (1 - \delta_i) \frac{p_{it+1}^x}{p_{it}^x}} \frac{\eta_{it+1}}{\eta_{jt}} y_{jt} \right)^{\omega_{jit}}$$

Along the BGP, the rate of adjustment is  $\tilde{\beta}_i$  as defined before and

$$x_{it} = \prod_{j} \left( \frac{\alpha_i \gamma_i}{\tilde{\beta}_i} \frac{\eta_{it+1}}{\eta_{jt}} y_{jt} \right)^{\omega_{ji}} \quad \text{or} \quad k_{it+1} = \prod_{j} \left( \frac{\alpha_i \gamma_i}{\tilde{\beta}_i \hat{\delta}_i} \frac{\eta_{it+1}}{\eta_{jt}} y_{jt} \right)^{\omega_{jit}}.$$

<sup>2</sup>Alternatively, describe this as

$$\zeta_{nt} \frac{y_{nt}}{c_{nt}} = \zeta_{nt} + \sum_{i} \frac{\alpha_{i} \gamma_{i} \omega_{ni}}{\frac{1}{R_{t}} - (1 - \hat{\delta}_{i}) \frac{p_{it+1}^{*}}{p_{it}^{*}}} \frac{x_{it+1}}{k_{it+1}} \frac{x_{it}}{x_{it+1}} \zeta_{it+1} \frac{y_{it+1}}{c_{it+1}} + \sum_{j} (1 - \gamma_{j}) \mu_{njt} \zeta_{jt} \frac{y_{jt}}{c_{jt}}$$

Which shows that the equilibrium Domar weights solve a first order equation in differences.

<sup>3</sup>Prices of sectorial output move inversely proportional to consumption, which in turn grows at the same rate as final output.

Assume that the supply of labor is inelastic at 1, so the fraction of labor allocated to each sector follows Domar weights adjusted by the sectorial labor expenditure shares in gross output,

$$l_i^{\star} = \frac{(1-\alpha_i)\gamma_i p_i y_i}{\sum_i (1-\alpha_i)\gamma_i p_i y_i} = \frac{(1-\alpha_i)\gamma_i \eta_i}{\sum_i (1-\alpha_i)\gamma_i \eta_i}$$

For the purpose of describing final demand, it would be useful to define  $\tilde{l}_i = \frac{l_i^2}{\gamma_i(1-\alpha_i)}$ . Also note that the employment allocation is constant along the BGP, because Domar weights are constant.

Final output in each sector is then

$$y_{nt} = \left[z_{nt} (\prod_{i} (\frac{\eta_{nt}}{\eta_{it-1}} y_{it-1})^{\omega_{in}})^{\alpha_n} (\tilde{l_{nt}})^{1-\alpha_n}\right]^{\gamma_n} \left[\prod_{i} \left(\frac{\eta_{nt}}{\eta_{it}} y_{it}\right)^{\mu_{in}}\right]^{1-\gamma_n}$$

Taking logs and writing output in matrix form we obtain

$$\ln(\mathbf{y}_t) = \Gamma \boldsymbol{\lambda}_t + \boldsymbol{\iota}_t + \Gamma \boldsymbol{\alpha} \Omega' \ln(\mathbf{y}_{t-1}) + (1 - \Gamma) M' \ln(\mathbf{y}_t)$$

where each element of the vector  $\boldsymbol{\iota}$  can be described as  $\iota_{nt} \equiv \gamma_n(1-\alpha_n)\ln(\tilde{l}_{nt}) + \gamma_n\alpha_n\sum_i\omega_{in}\ln(\frac{\eta_{nt}}{\eta_{it}}) + \gamma_n\alpha_n\sum_i\omega_{in}\ln(\frac{\eta_{nt}}{\eta_{it}}) + \ln(\frac{\eta_{it}}{\eta_{it-1}}) - \ln(\tilde{\beta}_i\delta_i)) + (1-\gamma_n)\sum_i\mu_{in}\ln(\frac{\eta_{nt}}{\eta_{it}}).$ 

Notice that the growth rate of gross output adjusted by the growth rate of the Domar weights is nothing else than the growth rate of sectorial prices. Along the steady state of the detrended economy, these are constant and therefore  $\ln(\frac{y_{it-1}}{y_{it}}) + \ln(\frac{\eta_{it}}{\eta_{it-1}})$  is simply zero.

The solution for gross output is then,

$$\ln(\mathbf{y}) = \Xi_t \Gamma z + \Xi_t \boldsymbol{\iota} \tag{3}$$

where the elasticity of output to sectorial productivity is proportional to  $\Xi_t \equiv (I - \Gamma \alpha_d \Omega' - (1 - \Gamma)M')^{-1}$ . Unlike the Domar weight, these elasticities are not adjusted by the investment rate. Let the price level of the economy be normalized to p = 1, then aggregate value added is  $\nu = \frac{p_n y_n}{\eta_n}$  for any *n*. We can compute a geometric average of each of the terms using the expenditure shares of consumption and investment  $\tilde{\zeta}_n \equiv \zeta_n + \frac{p_n \sum_i x_{ni}}{\nu}$  as weights (since these weights add up to 1).

$$\ln(\nu) = \sum_{n} \tilde{\zeta_n} \ln(p_n) + \sum_{n} \tilde{\zeta_n} \ln(y_n) - \sum_{n} \tilde{\zeta_n} \ln(\eta_n)$$

Given a CRS aggregator of sectorial output, the price index for final goods satisfies,  $\ln(p) = \sum_n \zeta_n \ln(p_n)$ . Because final output is the numeraire, the log of the price index equals zero, and therefore the first term in the expression for value added drops up. The weighting of the terms in the sum also include investment shares in value added. Investment shares are proportional to consumption shares in value added whenever sectorial value added shares are proportional to consumption shares across sectors. This is by construction the assumption in canonical models of input-output linkages without capital and we assume that feature here.<sup>4</sup>

<sup>&</sup>lt;sup>4</sup>Alternatively, one can set up the economy so that investment in different capital types is produced through the final good. This economy would also allow us to define the price of value added as a function of sectorial prices in a way that they drop out from the expression above, while allowing for investment shares that need not be proportional to consumption shares. The undesirable feature of this economy is that sector producing for final production and intermediate inputs are decoupled from those producing investment.

We have already characterized the solution to each of the last two terms, in equations 1 and

3.

$$\ln(\boldsymbol{\nu}_t) = \tilde{\boldsymbol{\zeta}}_t' \boldsymbol{\Xi}_t (\Gamma \boldsymbol{\lambda}_t + \boldsymbol{\iota}_t) - \tilde{\boldsymbol{\zeta}}_t' \ln(\boldsymbol{\eta}_t).$$

where we can define the elasticity of value to sectorial TFP as  $\tilde{\eta} \equiv \tilde{\zeta}' \Xi$ .

Unpacking this expression in vector form,  $\tilde{\zeta}_{jt} = \tilde{\eta}_{jt} - \sum_n \gamma_n \alpha_n \omega_{jn} \tilde{\eta}_{nt} - \sum_n (1 - \gamma_n) \mu_{jn} \tilde{\eta}_{nt}$ 

$$\sum_{j} \tilde{\zeta}_{jt} \ln(\eta_{jt}) = \sum_{j} \tilde{\eta}_{jt} \ln(\eta_{jt}) - \sum_{j} \sum_{i} \gamma_n \alpha_n \omega_{ji} \tilde{\eta}_{it} \ln(\eta_{jt}) - \sum_{j} \sum_{i} (1 - \gamma_n) \mu_{ji} \tilde{\eta}_{it} \ln(\eta_{jt})$$

Now consider the term,  $\tilde{\eta}_t \iota_t$ 

$$\sum_{n} \tilde{\eta}_{nt} \iota_{nt} = \sum_{n} \tilde{\eta}_{n} \gamma_{n} (1 - \alpha_{n}) \ln(\tilde{l}_{n}) + \tilde{\eta}_{nt} \gamma_{n} \alpha_{n} \sum_{j} \omega_{jn} \ln(\frac{\eta_{nt}}{\eta_{jt}}) + \tilde{\eta}_{nt} (1 - \gamma_{n}) \sum_{j} \mu_{jn} \ln(\frac{\eta_{nt}}{\eta_{jt}})) - \tilde{\eta}_{nt} \gamma_{n} \alpha_{n} \sum_{i} \omega_{in} \ln(\tilde{\beta}_{i} \hat{\delta}_{i})$$

which can be rewritten as

$$\sum_{n} \tilde{\eta}_{n} \iota_{n} = \sum_{n} \tilde{\eta}_{n} \gamma_{n} (1 - \alpha_{n}) \ln(\tilde{l}_{nt}) + \sum_{n} \tilde{\eta}_{nt} (\gamma_{n} \alpha_{n} + 1 - \gamma_{n}) \ln(\eta_{nt})$$
$$- \sum_{n} \tilde{\eta}_{nt} \gamma_{n} \alpha_{n} \sum_{j} \omega_{jn} \ln(\eta_{jt}) - \sum_{n} \tilde{\eta}_{n} (1 - \gamma_{n}) \sum_{j} \mu_{jn} \ln(\eta_{j})$$
$$- \tilde{\eta}_{nt} \gamma_{n} \alpha_{n} \sum_{i} \omega_{in} \ln(\tilde{\beta}_{i} \delta_{i}).$$

Therefore the difference in the last two terms of the expression for value added are

$$\sum_{n} \tilde{\eta}_{n} \iota_{n} - \sum_{n} \tilde{\zeta}_{n} \ln(\eta_{n}) = \sum_{n} \tilde{\eta}_{n} \gamma_{n} (1 - \alpha_{n}) (\ln(\tilde{l}_{n}) - \ln(\eta_{n})) - \tilde{\eta}_{nt} \gamma_{n} \alpha_{n} \sum_{i} \omega_{in} \ln(\tilde{\beta}_{i} \delta_{i})$$

We can rewrite the first two terms as a function of influence vectors by replacing the optimal labor demand,

$$\sum_{n} \tilde{\eta}_{n} \iota_{n} - \sum_{n} \tilde{\zeta}_{n} \ln(\eta_{n}) = \sum_{n} \tilde{\eta}_{n} \gamma_{n} (1 - \alpha_{n}) (\ln(\eta_{n}) - \ln(\eta_{n}) - \ln(\sum_{n} \gamma_{n} (1 - \alpha_{n}) \eta_{n}))$$

Hence,

$$\sum_{n} \tilde{\eta}_{n} \iota_{n} - \sum_{n} \tilde{\zeta}_{n} \ln(\eta_{n}) = -\ln(\sum_{n} \gamma_{n}(1-\alpha_{n})\eta_{n}) \sum_{n} \tilde{\eta}_{n} \gamma_{n}(1-\alpha_{n})$$

The equilibrium level of value added in the economy satisfies

$$\ln(\nu_t) = \tilde{\eta}_t' \Gamma \lambda_t - \tilde{\eta}_t' \Gamma(1-\alpha) \ln(\Gamma(1-\alpha)\eta_t) - \tilde{\eta}_t' \Gamma \alpha \Omega' \tilde{\beta}^{-1} \hat{\delta}$$

In vector form

$$\ln(\nu_t) = \sum_n \eta_{nt} \gamma_n z_{nt} - \ln(\sum_n \gamma_n (1 - \alpha_n) \eta_{nt}) \sum_n \tilde{\eta}_{nt} \gamma_n (1 - \alpha_n) - \sum_n \tilde{\eta}_{nt} \gamma_n \alpha_n \sum_i \omega_{in} \ln(\tilde{\beta}_i \delta_i)$$

#### 3.1 Alternative features of the model economy

#### 3.1.1 Technology choices, general set up.

We populate the economy by a continuum of firms that produce investment goods for each sector. These firms maximize profits by choosing the amount of investment in each equipment type, but also the intensity of use of each equipment for production following

$$\max_{\omega_{int},\chi_{int}} r_{nt} x_{nt} - \sum_{i} p_{it} \chi_{int}$$

subject to

$$x_{nt} = \sum_{i=1}^{N} \left( \omega_{int} \chi_{int}^{\sigma_n} \right)^{\frac{1}{\sigma_n}},\tag{4}$$

$$\sum_{i} \tilde{\xi}_{in} \omega_{int}^{\nu_n} = B_n \tag{5}$$

The production technology is a generalization of the investment aggregator described in equation **??**.

The optimal (interior) choices of firms are characterized by two conditions

$$\left(\frac{\chi_{jnt}}{\chi_{int}}\right)^{1-\sigma_n} = \frac{\omega_{jnt}}{\omega_{int}} \frac{p_{it}}{p_{jt}}$$
(6)

$$\left(\frac{\chi_{int}}{\chi_{jnt}}\right)^{\sigma_n} = \frac{\xi_{in}}{\xi_{jnt}} \left(\frac{\omega_{int}}{\omega_{jnt}}\right)^{\nu_n - 1} \tag{7}$$

Replacing 6 into 7 we obtain

$$\frac{\chi_{int}}{\chi_{jnt}} = \left(\frac{\xi_{in}}{\xi_{jnt}} \left(\frac{p_{it}}{p_{jt}}\right)^{\nu_n - 1}\right)^{\frac{1}{\sigma_n \nu_n + 1 - \nu_n}}$$
(8)

as well as

$$\frac{\omega_{jnt}}{\omega_{int}} = \left(\frac{\xi_{jnt}}{\xi_{in}}\right)^{\frac{1-\sigma_n}{\sigma_n\nu_n+1-\nu_n}} \left(\frac{p_{jt}}{p_{it}}\right)^{\frac{\sigma_n}{\sigma_n\nu_n+1-\nu_n}}$$
(9)

Hence, if  $\sigma_n \nu_n - (\nu_n - 1) < 0$  we obtain an interior solution. This is the same as requiring,  $\nu_n > 1/(1 - \sigma_n)$ . Such a condition requires more curvature in the technology choice than in the investment aggregator. As in **?**, if  $\sigma_n < 0$  firms choose to increase the efficiency of the relatively expensive factor, while if  $\sigma_n > 0$ , they increase the efficiency of the relatively cheap factor. At the same time, the relative demand for a particular investment type decreases in its price.

This economy reduces to our benchmark economy as we take the limit when  $\sigma_n \to 0$ . In that case, expenditure shares in the investment aggregators are simply the parameters characterizing the shape of the production possibility frontier in each economy  $\omega_{int} \propto \xi_{in}^{\frac{1}{1-\nu_n}}$ , and independent of relative prices.

#### 3.1.2 The two sector, two capital example

We characterize the planner's problem of a two sector, two capital types economy with no labor and no trade. We present the detrended economy and work in continuous time for convenience.

$$\max_{c_n}\int_{t=0}^{\infty}exp(-\rho t)U(c_1(t),c_2(t))$$

subject to

$$\begin{split} \dot{k}_1(t) &= x_1(t) - (\delta_1 + g_1^k)k(t) \\ \dot{k}_2(t) &= x_2(t) - (\delta_2 + g_2^k)k(t) \\ k_1^{\alpha}(t) &= c_1(t) + \sum_{i=1,2} \chi_{1i}(t) \\ k_2^{\alpha}(t) &= c_2(t) + \sum_{i=1,2} \chi_{2i}(t) \\ x_1(t) &= \prod_{j=1,2} \chi_{j1}(t)^{\omega_{j1}} \\ x_2(t) &= \prod_{j=1,2} \chi_{j2}(t)^{\omega_{j2}} \end{split}$$

Where  $g_i^k$  is the growth rate of capital along the BGP, which is in turn a combination of the growth rates of technological change of the investment bundle for each sectorial capital.

$$g_i^k = \sum_{j=1,2} \omega_{ji} g_j^y = \sum_{j=1,2} \omega_{ji} (g_j^z + \alpha_j g_j^k),$$

which can be solved as system of linear equation for the equilibrium growth rates of capital. If the growth rates of sectorial productivity are constant so are the growth rates of capital.

$$\boldsymbol{g}^k = (1 - \boldsymbol{\alpha})^{-1} \boldsymbol{\Omega}' \boldsymbol{g}^z$$

**Optimality** From the principle of optimality, we can solve for sufficient conditions for an optimum.

$$exp(-\rho t)\frac{\partial U(c_1(t), c_2(t))}{\partial c_i(t)} = \lambda_i$$
$$\lambda_i(t) = \mu_j(t)\omega_{ij}\frac{x_j(t)}{\chi_{ij}(t)}$$
10

$$\dot{\mu_i(t)} = -\left(\lambda_i(t)\frac{\partial F(k_i(t))}{\partial k_i(t)} - (\delta_i + g_i^k)\mu_i(t)\right)$$

We can use the optimality condition for investment to rewrite the dynamics in terms of the dynamics of the co-state  $\lambda$ 

$$\frac{\dot{\mu}_i(t)}{\mu_i(t)} = \frac{\dot{\lambda}_j(t)}{\lambda_j(t)} - \frac{x_i(t)}{x_i(t)} + \frac{\chi_{ji}(t)}{\chi_{ji}(t)}$$

Totally differentiating the optimality condition with respect to consumption, we obtain  $\dot{\lambda}_i(t) = -\sigma \frac{c_i(t)}{c_i(t)} - \rho$ . Hence,

$$\begin{aligned} \dot{\lambda}_{j}(t) &- \frac{x_{i}(t)}{x_{i}(t)} + \frac{\chi_{ji}(t)}{\chi_{ji}(t)} = -\frac{\lambda_{i}(t)}{\mu_{i}(t)} \frac{\partial F(k_{i}(t))}{\partial k_{i}(t)} + (\delta_{i} + g_{i}^{k}) \\ \sigma \frac{c_{j}(t)}{c_{j}(t)} &= \frac{\lambda_{i}(t)}{\mu_{i}(t)} \frac{\partial F(k_{i}(t))}{\partial k_{i}(t)} - \frac{x_{i}(t)}{x_{i}(t)} + \frac{\chi_{ji}(t)}{\chi_{ji}(t)} - (\delta_{i} + g_{i}^{k} - \rho) \end{aligned}$$

Which in terms of allocations is simply

$$\sigma \frac{c_i(t)}{c_i(t)} = \omega_{ii} \frac{x_i(t)}{\chi_{ii}(t)} \frac{\partial F(k_i(t))}{\partial k_i(t)} - \frac{x_i(t)}{x_i(t)} + \frac{\chi_{ji}(t)}{\chi_{ji}(t)} - (\delta_i + g_i^k - \rho)$$

This shows already why the dynamics of the system will be government by the relative allocation of investment across sectors. The dynamics of sectorial investment can be written in terms of its composition as

$$\frac{\dot{x_i(t)}}{x_i(t)} = \sum_{j=1,2} \omega_{ji} \frac{\chi_{ji}(t)}{\chi_{ji}(t)}$$

From the optimality condition for investment, we know that investment within the sector are inversely proportional to the shadow value of consumption, i.e.

$$\frac{\dot{\chi_{ji}(t)}}{\chi_{ji}(t)} = \frac{\dot{\chi_{ii}(t)}}{\chi_{ii}(t)} + \sigma \frac{c_i(t)}{c_i(t)} - \sigma \frac{c_j(t)}{c_j(t)}$$

Therefore, the Euler equation is

$$\sigma \frac{c_i(t)}{c_i(t)} = \omega_{ii} \frac{x_i(t)}{\chi_{ii}(t)} \frac{\partial F(k_i(t))}{\partial k_i(t)} - (\omega_{ii} - (1 - \omega_{ji})) \frac{\chi_{ii}(t)}{\chi_{ii}(t)} + (1 - \omega_{ji})\sigma(\frac{c_i(t)}{c_i(t)} - \frac{c_j(t)}{c_j(t)}) - (\delta_i + g_i^k - \rho)$$

but because the investment aggregator is constant returns to scale, the second term in the RHS drops out and

$$\omega_{ji}\sigma\frac{c_i(t)}{c_i(t)} = \omega_{ii}\frac{x_i(t)}{\chi_{ii}(t)}\frac{\partial F(k_i(t))}{\partial k_i(t)} - (1-\omega_{ji})\sigma\frac{c_j(t)}{c_j(t)} - (\delta_i + g_i^k - \rho)$$

Using an analogous expression for consumption in sector j, we can solve for the Euler equation as a function of primitives

$$\omega_{ji}\sigma\frac{c_i(t)}{c_i(t)} = \omega_{ii}\frac{x_i(t)}{\chi_{ii}(t)}\frac{\partial F(k_i(t))}{\partial k_i(t)} - (\delta_i + g_i^k - \rho) - (1 - \omega_{ji})\left(\frac{\omega_{jj}}{\omega_{ij}}\frac{x_j(t)}{\chi_{jj}(t)}\frac{\partial F(k_j(t))}{\partial k_j(t)} - \frac{\delta_j + g_j^k - \rho}{\omega_{ij}}\right)$$
(10)

The optimal path is further characterized by

$$\dot{k}_i(t) = \prod_{j=1,2} \chi_{ji}(t)^{\omega_{ji}} - (\delta_i + g_i^k)k_i(t),$$
(11)

$$F(k_i(t)) = c_i(t) + \sum_{j=1,2} \chi_{ij}(t).$$
(12)

To understand the system dynamics when we need to keep track of consumption, capital stocks, investment paths and the path of relative allocations of investment across sectors. Let  $\chi_i$  as the total investment coming from sector *i*. Then, we can combine 12 and 11 as follows,

$$\dot{k}_{i}(t) = \prod_{j=1,2} \chi_{j}(t)^{\omega_{ji}} \prod_{j=1,2} \kappa_{ji}^{\omega_{ji}} - (\delta_{i} + g_{i}^{k})k_{i}(t),$$

where  $\kappa_{ji} \equiv \frac{\chi_{ji}(t)}{\chi_j(t)}$  is the fraction of investment goods produced in sector *j* going to sector *i*.

We can then incorporate the feasibility constraint into the law of motion for capital as follows

$$\dot{k}_{i}(t) = \prod_{j=1,2} \left( F(k_{j}(t)) - c_{j}(t) \right)^{\omega_{ji}} \prod_{j=1,2} \kappa_{ji}(t)^{\omega_{ji}} - (\delta_{i} + g_{i}^{k})k_{i}(t),$$
(13)

Hence, to complete the full dynamics, we need a dynamic equation for  $\kappa_{ji}(t)$  which we obtain from the optimal allocation of investment across sectors. Consider investment goods from sector *j* used in *i* and *i'*, optimality yields,

$$\frac{\kappa_{ji}(t)}{\kappa_{ji'}(t)} = \frac{\mu_i(t)}{\mu_{i'}(t)} \frac{\omega_{ij}}{\omega_{ji'}} \frac{x_i(t)}{x_{i'}(t)}$$

Totally differentiating,

$$\frac{\dot{\kappa}_{ji}(t)}{\kappa_{ji}(t)} - \frac{\dot{\kappa}_{ji'}(t)}{\kappa_{ji'}(t)} = \frac{\dot{\mu}_i(t)}{\mu_i(t)} - \frac{\dot{\mu}_{i'}(t)}{\mu_{i'}(t)} + \frac{\dot{x}_i(t)}{x_i(t)} - \frac{\dot{x}_{i'}(t)}{x_{i'}(t)},$$

and now replacing by the euler equation for the dynamic of the shadow price of capital

$$\frac{\dot{\kappa}_{ji}(t)}{\kappa_{ji}(t)} - \frac{\dot{\kappa}_{ji'}(t)}{\kappa_{ji'}(t)} = -\left(\omega_{ii}\frac{x_i(t)}{\chi_{ii}(t)}\frac{\partial F(k_i(t))}{\partial k_i(t)} - \omega_{i'i'}\frac{x_{i'}(t)}{\chi_{i'i'}(t)}\frac{\partial F(k_{i'}(t))}{\partial k_{i'}(t)}\right) + \left(\delta_i + g_i^k\right) - \left(\delta_{i'} + g_{i'}^k\right) + \frac{\dot{x}_i(t)}{x_i(t)} - \frac{\dot{x}_{i'}(t)}{x_{i'}(t)} - \frac{\dot{x}_{i'}(t)}{\chi_{i'}(t)} - \frac{\dot{x}_{i'}(t)}{\chi_{i'}(t)}$$

where we can use the definition for investment to write the last two terms as a function of capital, consumption in each sector and the sectorial allocation of investment. Given

$$x_{i}(t) = \prod_{j=1,2} \left( F(k_{j}(t)) - c_{j}(t) \right)^{\omega_{ji}} \prod_{j=1,2} \kappa_{ji}(t)^{\omega_{ji}}$$
12

then

$$\frac{\dot{x}_i(t)}{x_i(t)} - \frac{\dot{x}_j(t)}{x_j(t)} \approx \omega_i j \frac{\dot{\kappa}_{ji}(t)}{\kappa_{ji}(t)} - \omega_{jj} \frac{\dot{\kappa}_{jj}}{\kappa_{jj}} + \omega_{ii} \frac{\dot{\kappa}_{ii}(t)}{\kappa_{ii}(t)} - \omega_{ij} \frac{\dot{\kappa}_{ij}}{\kappa_{ij}}$$

By definition  $\kappa_{ji}(t) = 1 - \kappa_{ji'}(t)$  and therefore

$$\frac{\dot{\kappa}_{ji}(t)}{\kappa_{ji}(t)} = -\frac{\kappa_{ji'}(t)}{1 - \kappa_{ji'}(t)} \frac{\dot{\kappa}_{ji'}(t)}{\kappa_{ji'}(t)}$$
(15)

which implies,

$$\frac{\dot{x}_i(t)}{x_i(t)} - \frac{\dot{x}_j(t)}{x_j(t)} \approx \left(\omega_{ji} + \omega_{jj}\frac{\kappa_{jj}}{1 - \kappa_{jj}}\right)\frac{\dot{\kappa}_{ji}(t)}{\kappa_{ji}(t)} - \left(\omega_{ij} + \omega_{ii}\frac{\kappa_{ii}}{1 - \kappa_{ii}}\right)\frac{\dot{\kappa}_{ij}}{\kappa_{ij}}$$

Hence, the dynamics of the allocation of capital 14

$$\frac{\dot{\kappa}_{ji}(t)}{\kappa_{ji}(t)} \left( \frac{1}{1 - \kappa_{ji}} - (\omega_{ji} + \omega_{jj} \frac{\kappa_{jj}}{1 - \kappa_{jj}}) \right) = (\omega_{jj} \frac{x_j(t)}{\chi_{jj}(t)} \frac{\partial F(k_j(t))}{\partial k_j(t)} - \omega_{ii} \frac{x_i(t)}{\chi_{ii}(t)} \frac{\partial F(k_i(t))}{\partial k_i(t)}) \\ + (\delta_i + g_i^k) - (\delta_{i'} + g_{i'}^k) - \left( \omega_{ij} + \omega_{ii} \frac{\kappa_{ii}}{1 - \kappa_{ii}} \right) \frac{\dot{\kappa}_{ij}}{\kappa_{ij}}$$

An analogous condition for  $\frac{\dot{\kappa}_{ji}(t)}{\kappa_{ji}(t)}$  determines a system of linear equations that can be solved for the dynamics of the investment allocation. Let  $\zeta_{ji} \equiv (\omega_{ji} + \omega_{jj} \frac{\kappa_{jj}}{1 - \kappa_{jj}})$ , then

$$\frac{\dot{\kappa}_{ji}(t)}{\kappa_{ji}(t)} = \frac{1}{\left(\frac{1}{1-\kappa_{ji}} - \zeta_{ji}\right)\left(\frac{1}{1-\kappa_{ij}} - \zeta_{ij}\right)} \left(\omega_{jj}\frac{x_j(t)}{\chi_{jj}(t)}\frac{\partial F(k_j(t))}{\partial k_j(t)} - \omega_{ii}\frac{x_i(t)}{\chi_{ii}(t)}\frac{\partial F(k_i(t))}{\partial k_i(t)} + \delta_i + g_i^k - \delta_j + g_j^k\right)$$
(16)

Finally,

$$\frac{x_i(t)}{\chi_{ii}(t)} = \prod_{j=1,2} \left( \frac{F(k_j(t)) - c_j(t)}{F(k_i(t)) - c_i(t)} \right)^{\omega_{ji}} \prod_{j=1,2} \frac{\kappa_{ji}(t)}{\kappa_{ii}(t)}$$
(17)

Steady state. Along the steady state

$$exp(-\rho t)\frac{\partial U(c_1(t), c_2(t))}{\partial c_i(t)} = \lambda_i$$

$$\frac{\lambda_i(t)}{\mu_i(t)} = \frac{\partial F(k_i(t))}{\partial k_i(t)}^{-1} (\delta_i + g_i^k)$$

and therefore

$$\frac{x_j(t)}{\chi_{ij}(t)} = \left(\omega_{ij}\frac{\partial F(k_i(t))}{\partial k_i(t)}\right)^{-1} (\delta_i + g_i^k)$$

The Euler equation and the dynamic condition for the allocation of investment across sectors, implies that in a steady state

$$\omega_{ii}rac{x_i(t)}{\chi_{ii}(t)}rac{\partial F(k_i(t))}{\partial k_i(t)}=\delta_i+g_i^k-
ho.$$

Note that the one sector neoclassical growth model is a special case of this, where investment is fully specialized in one sector,  $\omega_{ii} = 1$  and  $\frac{x_i(t)}{\chi_{ii}(t)} = 1$ .

The law of motion for capital, 11 implies,

$$x_i(t) = k_i(t)(\delta_i + g_i^k),$$

replacing back,

$$\omega_{ii} \frac{k_i(t)}{\chi_{ii}(t)} \frac{\partial F(k_i(t))}{\partial k_i(t)} = \hat{\rho}_i.$$
(18)

where  $\hat{\rho}_i \equiv 1 - \frac{\rho}{\delta_i + g_i^k}$ .

The optimal allocation of consumption under separable log-utility and using the feasibility constraint in each sector, 12 satisfies,

$$\lambda_i(t) = \frac{\theta_i}{F(k_i(t))(1 - \frac{\omega_{ii}\epsilon_i}{\hat{\rho}_i}) - \chi_{ij}(t)}$$
(19)

where  $\epsilon_i \equiv \frac{k_i(t)}{F(k_i(t))} \frac{\partial F(k_i(t))}{\partial k_i(t)}$  is the output elasticity to capital.

Replacing 18 into the steady state law of motion for capital and using the definition of investment  $x_i$  we obtain

$$\chi_{ji}(t) = \left(k_i(t)(\delta_i + g_i^k)\right)^{\frac{1}{\omega_{ji}}} \left(\omega_{ii}\frac{\epsilon_i}{\hat{\rho}_i}F(k_i(t))\right)^{\frac{-\omega_{ii}}{\omega_{ji}}}$$
(20)

which we can replace back in the expression for the price  $\lambda_i$ , defining prices as a function of the stock of capital in each sector and parameters.

We can rewrite the steady state 11 as

$$\frac{k_i(t)}{\chi_{ii}(t)}(\delta_i + g_i^k) = \left(\frac{\chi_{ji}(t)}{\chi_{ii}(t)}\right)^{\omega_{ji}}$$

and using the optimal input demands,

$$\frac{k_i(t)}{\chi_{ii}(t)}(\delta_i + g_i^k) = \left(\frac{\lambda_i}{\lambda_j}\frac{\omega_{ji}}{\omega_{ii}}\right)^{\omega_j}$$

Replacing back, 18 we can solve for

$$(\delta_i + g_i^k - \rho) \frac{k_i(t)}{\omega_{ii} \epsilon_i F(k_i)} = \left(\frac{\lambda_i}{\lambda_j} \frac{\omega_{ji}}{\omega_{ii}}\right)^{\omega_{ji}}$$
(21)

Therefore, equations 20, 19 and 21 solve for the capital stock in each sector.

**Dynamics** The optimality conditions of the problem, equation 10 to 12 and 17 yield the conditions describing the optimal dynamics of the system around a neighborhood of the BGP. We repeat them here to ease the exposition Using an analogous expression for consumption in sector j, we can solve for the Euler equation just a function of primitives

$$\omega_{ji}\sigma\frac{c_i(t)}{c_i(t)} = \omega_{ii}\frac{x_i(t)}{\chi_{ii}(t)}\frac{\partial F(k_i(t))}{\partial k_i(t)} - (\delta_i + g_i^k - \rho) - (1 - \omega_{ji})\left(\frac{\omega_{jj}}{\omega_{ij}}\frac{x_j(t)}{\chi_{jj}(t)}\frac{\partial F(k_j(t))}{\partial k_j(t)} - \frac{\delta_j + g_j^k - \rho}{\omega_{ij}}\right)$$

$$\dot{k}_{i}(t) = \prod_{j=1,2} \left( F(k_{j}(t)) - c_{j}(t) \right)^{\omega_{ji}} \prod_{j=1,2} \kappa_{ji}(t)^{\omega_{ji}} - (\delta_{i} + g_{i}^{k})k_{i}(t),$$

$$\frac{\dot{\kappa}_{ji}(t)}{\kappa_{ji}(t)} = \frac{1}{\left(\frac{1}{1-\kappa_{ji}} - \zeta_{ji}\right)\left(\frac{1}{1-\kappa_{ij}} - \zeta_{ij}\right)} \left(\omega_{jj}\frac{x_j(t)}{\chi_{jj}(t)}\frac{\partial F(k_j(t))}{\partial k_j(t)} - \omega_{ii}\frac{x_i(t)}{\chi_{ii}(t)}\frac{\partial F(k_i(t))}{\partial k_i(t)} + \delta_i + g_i^k - \delta_j + g_j^k\right)$$
  
where  $\zeta_{ji} \equiv (\omega_{ji} + \omega_{jj}\frac{\kappa_{jj}}{1-\kappa_{jj}}).$ 

$$\dot{\kappa}_{jj}(t) = -\dot{\kappa}_{ji}(t)$$

$$\frac{x_i(t)}{\chi_{ii}(t)} = \prod_{j=1,2} \left( \frac{F(k_j(t)) - c_j(t)}{F(k_i(t)) - c_i(t)} \right)^{\omega_{ji}} \prod_{j=1,2} \frac{\kappa_{ji}(t)}{\kappa_{ii}(t)}^{\omega_{ji}}$$

The Jacobian of the system computed at the steady state would characterize the speed of convergence to the steady state, which is bounded by its largest eigenvalue (in absolute value). If the spectral radius of the system is below 1 the system is stable.

## 4 Sectorial Crosswalks

#### (a) ISIC Rev.3

ISIC Rev.3 IndustryCode	Aggregate Sector	
A01	Agriculture	
A02	Agriculture	
B05	Agriculture	
C10	Mining	
C11	Mining	
C12	Mining	
C13	Mining	
C14	Mining	
	Nondurables	
D16	Nondurables	
D10	Nondurables	
	Nondurables	
D18		
D19	Nondurables	
D20	Durables	
D21	Nondurables	
D22	Nondurables	
D23	Nondurables	
D24	Nondurables	
D25	Nondurables	
D26	Durables	
D27	Durables	
D28	Durables	
D29	Machinery	
D30	Electronics	
D31	Electronics	
	Electronics	
D32		
D33	Electronics	
D34	Transportation	
D35	Transportation	
D36	Durables	
D37	Services	
E40	Services	
E41	Services	
F45	Construction	
G50	Services	
G51	Services	
G52	Services	
H55	Services	
160	Trptservices	
	Trptservices	
	Trptservices	
	*	
163	Trptservices	
I64	ICT	
J65	Services	
J66	Services	
J67	Services	
K70	Services	
K71	ICT	
K72	ICT	
K73	ICT	
K74	ICT	
L75	Services	
M80	Services	
N85	Services	
090	Services	
O91	Services	
091		
-	Services	
093	Services	
P95	Services	
P96	Services	
P97	Services	
Q99	Services	

#### (b) Mensah and de Vries (2023)

MDV Sector (ISIC Rev.4)	Sector Description	Aggregate Sector
А	Agriculture	Agriculture
C10t12	Food	Nondurables
C13t15	Textiles	Nondurables
C16t18	Wood	Nondurables
C19t22	Fuel	Nondurables
C23t25	Metals	Durables
C26t27	Electronics	Electronics
C28	Machinery	Machinery
C29t30	Transportation equipment	Transportation
C31t33	Other manufacturing	Durables
DtE	Utilities	Services
F	Construction	Construction
GnI	Trade	Services
JnMN	Business services	ICT
K	Financial services	Services
L	Real estate	Services
OtQ	Public administration	Services
RtU	Other services	Services
В	Mining	Mining
Н	Transport	Trptservices

## 4.1 IPUMS: Country Specific Crosswalks

IPUMS Code	Description	Sector
0	Poorly specified activities	-
1101	Rice cultivation	Agriculture
1102	Corn cultivation	Agriculture
1103	Other cereals	Agriculture
1104	Herbaceous cotton	Agriculture
1105	Sugar cane	Agriculture
1106	Tobacco	Agriculture
1107	Soybeans	Agriculture
1108	Manioc root	Agriculture
1109	Other temp. agri. products	Agriculture
1110	Salad greens, vegetables	Agriculture
1111	Flowers, ornamental plants	Agriculture
1112	Citric fruits	Agriculture
1113	Coffee	Agriculture
1114	Cocoa beans	Agriculture
1115	Grapes	Agriculture
1116	Bananas	Agriculture
1117	Other perm. farm products	Agriculture
1118	Poorly specified crops	Agriculture
1119	Non-specified crop	Agriculture
1201	Cattle raising	Agriculture
1202	Raising other large animals	Agriculture
1203	Sheep raising	Agriculture
1204	Swine raising	Agriculture
1205	Poultry raising	Agriculture
1206	Bee raising	Agriculture
1207	Silk production	Agriculture
1208	Raising other animals	Agriculture
1209	Poorly specified animals	Agriculture
1401	Agri. related services	Agriculture
1402	Cattle related services	Agriculture
1500	Hunting and related services	Agriculture
1999	Non-specified agriculture	Agriculture
2000	Lumber and forest exploitation	Agriculture
3001	Fishing services	Agriculture
3002	Aquiculture services	Agriculture
5000	Coal mining	Mining
6000	Oil and natural gas	Mining
7001	Precious metals	Mining
7002	Non-specified precious metals	Mining
8001	Stones, construction materials	Mining
8002	Precious stones	Mining
8009	Non-specified minerals	Mining
8999	Non-specified minerals	Mining
9000	Mining services	Mining
10010	Meat and fish products	Nondurables
10021	Fruit and vegetable preserves	Nondurables
10022	Vegetable fat and oil	Nondurables
10022 10030	Vegetable fat and oil Dairy products	Nondurables Nondurables
10030	Dairy products	Nondurables
10030 10091	Dairy products Animal feed	Nondurables Nondurables
10030 10091 10092	Dairy products Animal feed Sugar	Nondurables Nondurables Nondurables
10030 10091 10092 10093	Dairy products Animal feed Sugar Roasted coffee	Nondurables Nondurables Nondurables
10030 10091 10092 10093 10099	Dairy products Animal feed Sugar Roasted coffee Other food products	Nondurables Nondurables Nondurables Nondurables
10030 10091 10092 10093 10099 10999	Dairy products Animal feed Sugar Roasted coffee Other food products Non-specified food products	Nondurables Nondurables Nondurables Nondurables Nondurables
10030           10091           10092           10093           10099           10099           10999           11000	Dairy products Animal feed Sugar Roasted coffee Other food products Non-specified food products Beverages	Nondurables Nondurables Nondurables Nondurables Nondurables Nondurables
10030           10091           10092           10093           10099           10099           10099           10090           10000	Dairy products Animal feed Sugar Roasted coffee Other food products Non-specified food products Beverages Tobacco products	Nondurables Nondurables Nondurables Nondurables Nondurables Nondurables Nondurables
10030           10091           10092           10093           10099           10999           10000           12000           13001	Dairy products Animal feed Sugar Roasted coffee Other food products Non-specified food products Beverages Tobacco products Fibers, weaving	Nondurables Nondurables Nondurables Nondurables Nondurables Nondurables Nondurables Nondurables
10030           10091           10092           10093           10099           10999           11000           12000           13001	Dairy products Animal feed Sugar Roasted coffee Other food products Non-specified food products Beverages Tobacco products Fibers, weaving Textile objects	Nondurables Nondurables Nondurables Nondurables Nondurables Nondurables Nondurables Nondurables
10030 10091 10092 10093 10099 10999 11000 12000 13001 13002 13999	Dairy products Animal feed Sugar Roasted coffee Other food products Non-specified food products Beverages Tobacco products Fibers, weaving Textile objects Non-specified textiles	Nondurables Nondurables Nondurables Nondurables Nondurables Nondurables Nondurables Nondurables Nondurables
10030           10091           10092           10093           10099           10999           10999           10000           12000           13001           13092           13999           14001	Dairy products Animal feed Sugar Roasted coffee Other food products Nor-specified food products Beverages Tobacco products Fibers, weaving Textile objects Non-specified textiles Clothing articles	Nondurables Nondurables Nondurables Nondurables Nondurables Nondurables Nondurables Nondurables Nondurables Nondurables
10030           10091           10092           10093           10099           10099           10000           12000           13001           13002           13999           14001           14002	Dairy products Animal feed Sugar Roasted coffee Other food products Non-specified food products Beverages Tobacco products Fibers, weaving Textile objects Non-specified textiles Clothing articles Custom clothing articles	Nondurables Nondurables Nondurables Nondurables Nondurables Nondurables Nondurables Nondurables Nondurables Nondurables Nondurables
10030           10091           10092           10093           10099           10099           10000           12000           13001           13002           13999           14001           14002           14999	Dairy products Animal feed Sugar Roasted coffee Other food products Non-specified food products Beverages Tobacco products Fibers, weaving Textile objects Non-specified textiles Clothing articles Custom clothing articles Non-specified clothing	Nondurables Nondurables Nondurables Nondurables Nondurables Nondurables Nondurables Nondurables Nondurables Nondurables Nondurables

## Table 5: Brazil

IPUMS Code	Description	Sector
16001	Sawmills	Durables
16002	Wooden products	Durables
17001	Pulp, paper, cardboard	Nondurables
17002	Corrugated cardboard, packaging	Nondurables
18000	Printing, recordings reproduction	Nondurables
19010	Coke plants	Nondurables
19020	Oil refining products	Nondurables
19030	Biofuels production	Nondurables
20010	Paints, dyes, varnish, enamels	Nondurables
20020	Soap, detergents, toiletries	Nondurables
20090	Miscellaneous chemicals	Nondurables
20999	Non-specified chemicals	Nondurables
21000	Pharmaceutical products	Nondurables
22010	Rubber products	Nondurables
22020	Plastic products	Nondurables
23010	Glass and glass products	Durables
23091	Cement and concrete products	Durables
23092	Plaster products	Durables
23099	Non-metallic mineral products	Durables
23999 24010	Non-metallic mineral products Steel and derivatives	Durables Durables
24010	Precious metals	Durables
24021	Non-ferrous metals	Durables
24022	Foundry	Durables
25010	Finished metal products	Durables
25021	Steam generators	Durables
26000	Computer, electronics, optics	Durables
27000	Electrical machinery	Durables
28000	Machinery and equipment	Durables
29000	Automotive vehicles, trailers	Durables
30000	Other transportation equipment	Durables
31000	Furniture	Durables
32000	Miscellaneous products	Durables
33000	Maintenance, repair, installation	Durables
35000	Electricity, gas	Utilities
41000	Buildings	Construction
42000	Infrastructure works	Construction
43000	Construction of buildings	Construction
45000	Automotive trade, parts	Trade
46000	Wholesale trade	Trade
47000	Retail trade	Trade
49000	Land transportation	Transport
50000	Water transportation	Transport
51000	Air transportation	Transport
52000	Storage	Transport
53000	Mailing	Transport
55000	Accommodation Food services	Services
56000	Food services	Services
58000 59000	Publishing, printing Cinema, videos, TV, recording	Services Services
60000	TV, radio	Services
61000	Telecommunications	Services
62000	IT services	Services
63000	Information services	Services
64000	Financial activities	Services
65000	Insurance, pension funds	Services
66000	Aux. financial services	Services
68000	Real estate activities	Services
69000	Legal, accounting, consulting	Services
70000	Management consultancy	Services
71000	Architecture, engineering	Services
72000	Research and development	Services
73000	Advertising	Services
74000	Professional services	Services
75000	Veterinary activities	Services
	Machine, equipment rental	Services
77000		
77000 95000	Repair of computers, personal goods	Services
		Services Services Services

### Table 6: Switzerland

IPUMS Cod		Sector
10	Agriculture	Agriculture
20	Horticulture	Agriculture
30	Forestry	Agriculture
40	Fishing	Agriculture
110	Energy and water supply	Services
211	Meat industry	Nondurables
212	Dairy industry	Nondurables
213 214	Flour mills	Nondurables
214	Canned goods, juices	Nondurables
216	Sugar, candy, chocolate, pastry Animal feed	Nondurables Nondurables
219	Beverage industry	Nondurables
220	Tobacco industry	Nondurables
230	Spinning, weaving	Nondurables
245	Machine embroidery	Nondurables
245	Textile finishing	Nondurables
247	Other textile industries	Nondurables
251	Clothing and underwear	Nondurables
255	Hats, fur garments, pelts	Nondurables
261	Wood furniture	Durables
262	Wood, cork, wicker, rattan articles	Durables
271	Pulp, paper, cardboard	Nondurables
272	Paper processing	Nondurables
280	Printing, editing industries	Nondurables
200	Leather articles	Nondurables
293	Footwear industry	Nondurables
311	Chemical products	Nondurables
314	Oil refining	Nondurables
321	Plastic articles	Nondurables
322	Rubber articles	Nondurables
331	Non-metal products	Durables
333	Cement, lime, gypsum, concrete	Durables
335	Ceramic products	Durables
336	Glass industry	Durables
341	Metal manufacturing, processing	Durables
344	Metal curing, plating	Durables
345	Metal buildings, workshops	Durables
350	Machine, vehicle construction	Machinery
350	Machine, vehicle construction	Transport
350	Machine, vehicle construction	Electronics
371	Clock making	Durables
372	Jewelry, engraving, minting	Durables
381	Musical instruments	Durables
382	Games, toys, sports items	Durables
383	Photo, motion picture darkroom	ICT
384	Other material processing	Machinery
410	Civil engineering, construction	Construction
421	Plumbing, ventilation, air conditioning	Construction
	Interior improvements	Construction
422		
423	Electrical wiring	Construction
423 511	Electrical wiring Wholesale, retail products	Construction Services
423 511 512	Electrical wiring Wholesale, retail products Food, beverage, tobacco retail	Construction Services Services
423 511 512 513	Electrical wiring Wholesale, retail products Food, beverage, tobacco retail Drug, chemical retail	Construction Services Services
423 511 512 513 514	Electrical wiring Wholesale, retail products Food, beverage, tobacco retail Drug, chemical retail Textile, leather retail	Construction Services Services Services
423 511 512 513 514 516	Electrical wiring Wholesale, retail products Food, beverage, tobacco retail Drug, chemical retail Textile, leather retail Furniture, rugs, carpets	Construction Services Services Services Services
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### Table 7: China

IPUMS Cod		Sector
0	NIU (not in universe) Crop cultivation	Agriculture
2	Forestry	Agriculture
3	Livestock	Agriculture
4	Fishery	Agriculture
5	Crop, forestry, livestock services	Agriculture
6	Coal mining	Mining
7	Petroleum, natural gas	Mining
8	Ferrous ore mining	Mining
9	Non-ferrous ore mining	Mining
10	Non-metal mining	Mining
11	Other mining	Mining
12	Timber transport	Mining
13	Food products	Nondurables
14	Manufacture of food products	Nondurables
15	Beverage	Nondurables
16	Tobacco products	Nondurables
17	Textiles	Nondurables
18	Apparel	Nondurables
19	Leather, fur products	Nondurables
20	Wood, bamboo products	Durables
21	Furniture	Durables
22	Paper products	Nondurables
23	Printing, recording media	Nondurables
24	Cultural, sports products	Nondurables
25	Petroleum refining, coking	Nondurables
26	Chemicals	Nondurables
27	Pharmaceuticals	Nondurables
28	Chemical fibers	Nondurables
29	Rubber products	Nondurables
30	Plastic products	Nondurables
31	Non-metal mineral products	Durables
32	Ferrous metal smelting	Durables
33	Non-ferrous metal smelting	Durables
34	Metal products	Durables
35	Common machinery	Machinery
36	Special machinery	Machinery
37	Transport equipment	Transportation
39	Weapon, ammunition	Durables
40	Electric machinery	Electronics
41	Electronic equipment	Electronics
42	Instruments, office machinery	Electronics
43	Other machinery	Machinery
44	Electricity supply	Services
45	Gas supply	Services
46	Water supply	Services
UF		
46	Civil engineering construction	Construction
47 48		Construction Construction
47 48 49	Civil engineering construction Cable, pipe installation Construction, ornamentation	Construction Construction
47 48 49 50	Civil engineering construction Cable, pipe installation Construction, ornamentation Geological prospecting	Construction Construction Services
47 48 49 50 51	Civil engineering construction Cable, pipe installation Construction, ornamentation Geological prospecting Water conservancy	Construction Construction Services Services
47 48 49 50 51 52	Civil engineering construction Cable, pipe installation Construction, ornamentation Geological prospecting Water conservancy Railway transport	Construction Construction Services Services Trptservices
47 48 49 50 51 52 53	Civil engineering construction Cable, pipe installation Construction, ornamentation Geological prospecting Water conservancy Railway transport Highway transport	Construction Construction Services Services Trptservices Trptservices
47 48 49 50 51 52 53 54	Civil engineering construction Cable, pipe installation Construction, ornamentation Geological prospecting Water conservancy Railway transport Highway transport Pipeline transport	Construction Construction Services Services Trptservices Trptservices Trptservices
47 48 49 50 51 52 53	Civil engineering construction Cable, pipe installation Construction, ornamentation Geological prospecting Water conservancy Railway transport Highway transport	Construction Construction Services Services Trptservices Trptservices
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47 48 49 50 51 52 53 54 55 56 57 58	Civil engineering construction Cable, pipe installation Construction, ornamentation Geological prospecting Water conservancy Railway transport Highway transport Pipeline transport Water transport Air transport Transport auxiliary Other transport	Construction Construction Services Services Trptservices Trptservices Trptservices Trptservices Trptservices Trptservices
47 48 49 50 51 52 53 54 55 56 57 58 59	Civil engineering construction Cable, pipe installation Construction, ornamentation Geological prospecting Water conservancy Railway transport Highway transport Pipeline transport Water transport Air transport Transport auxiliary Other transport Warehousing	Construction Construction Services Trptservices Trptservices Trptservices Trptservices Trptservices Trptservices Trptservices Trptservices
47 48 49 50 51 52 53 54 55 56 57 58 59 60	Civil engineering construction Cable, pipe installation Construction, ornamentation Geological prospecting Water conservancy Railway transport Highway transport Pipeline transport Water transport Air transport Transport auxiliary Other transport Warehousing Post, telecommunication	Construction Construction Services Trptservices Trptservices Trptservices Trptservices Trptservices Trptservices Trptservices Trptservices Trptservices Trptservices
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47 48 49 50 51 53 53 54 55 55 56 57 58 59 60 61 62 63 64 65	Civil engineering construction Cable, pipe installation Construction, ornamentation Geological prospecting Water conservancy Railway transport Highway transport Pipeline transport Water transport Air transport Transport auxiliary Other transport Warehousing Post, telecommunication Food, beverage wholesale Power, materials, machinery wholesale Other wholesale Retail trade Commercial brokerage	Construction Construction Services Trptservices Trptservices Trptservices Trptservices Trptservices Trptservices Trptservices Trptservices Services Services Services Services Services
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47 48 49 50 51 53 54 55 56 57 57 58 59 60 61 61 62 63 64 64 65 67 68	Civil engineering construction Cable, pipe installation Construction, ornamentation Geological prospecting Water conservancy Railway transport Highway transport Pipeline transport Water transport Air transport Transport auxiliary Other transport Transport auxiliary Other transport Becommunication Food, beverage wholesale Power, materials, machinery wholesale Retail trade Commercial brokerage Restaurants Finance	Construction Construction Services Services Trptservices Trptservices Trptservices Trptservices Trptservices Trptservices Trptservices Services Services Services Services Services Services Services Services
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47 48 49 50 51 53 55 56 57 58 56 57 58 56 60 61 61 62 63 64 64 65 67 70 73 73 74 75 75 88 60 60 61 61 62 88 70 72 73 73 74 88 75 88 88 75 88 75 88 75 88 75 88 75 75 75 75 75 75 75 75 75 75 75 75 75	Civil engineering construction Cable, pipe installation Construction, ornamentation Geological prospecting Water conservancy Railway transport Highway transport Pipeline transport Air transport Transport auxiliary Other transport Transport auxiliary Other transport Warehousing Post, telecommunication Food, beverage wholesale Power, materials, machinery wholesale Other wholesale Retail trade Commercial brokerage Restaurants Finance Insurance Real estate development Real estate brokerage Public facilities services Resident services Resident services Recreational services Information consultancy Computer services Other social services	Construction Construction Services Trptservices Trptservices Trptservices Trptservices Trptservices Trptservices Trptservices Trptservices Services
47 48 49 50 51 53 53 54 55 56 57 57 58 59 60 61 61 62 63 64 65 65 67 70 72 73 74 75 76 88 70 72 73 74 75 78 83 79 80 81 82 83 84 85	Civil engineering construction Cable, pipe installation Construction, ornamentation Geological prospecting Water conservancy Railway transport Highway transport Pipeline transport Water transport Air transport Transport auxiliary Other transport Transport auxiliary Other transport Belowing Post, telecommunication Food, beverage wholesale Power, materials, machinery wholesale Power, materials, machinery wholesale Power, materials, machinery wholesale Other wholesale Retail trade Commercial brokerage Retail trade Commercial brokerage Restaurants Finance Insurance Real estate development Real estate brokerage Public facilities services Resident services Hotels Lease services Information consultancy Computer services Health services	Construction Construction Services Services Trptservices Trptservices Trptservices Trptservices Trptservices Trptservices Trptservices Trptservices Services
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47 48 49 50 51 53 54 55 56 57 58 59 60 61 62 63 64 65 67 66 67 68 67 70 70 70 70 70 70 70 70 80 81 83 84 85 86 87 99 90	Civil engineering construction Cable, pipe installation Construction, ornamentation Geological prospecting Water conservancy Railway transport Highway transport Pipeline transport Air transport Transport auxiliary Other transport Water transport Water transport Foot, telecommunication Food, beverage wholesale Power, materials, machinery wholesale Other wholesale Commercial brokerage Restaurants Finance Insurance Real estate development Real estate development Real estate development Real estate development Real estate brokerage Public facilities services Hotels Lease services Tour services Recreational services Other services Hotels Lease services Hotels Lease services Hotels Hotels Hotels Hotels Hotels Hotels Hotels Hotels Hotels Hotels Hotels Hotels Hotels Heast services Other social services Heast services Computer services Computer services Computer services Heast services Computer services Heast service	Construction Construction Services Services Trptservices Trptservices Trptservices Trptservices Trptservices Trptservices Trptservices Services
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47 48 49 50 51 53 53 54 55 55 57 58 59 59 60 61 61 62 63 64 65 65 67 63 64 65 65 67 70 72 73 74 75 76 88 79 80 81 82 83 81 82 83 85 85 89 90 91 91 92 92 93	Civil engineering construction Cable, pipe installation Construction, ornamentation Geological prospecting Water conservancy Railway transport Highway transport Pipeline transport Air transport Transport auxiliary Other transport Water transport Warehousing Post, telecommunication Food, beverage wholesale Power, materials, machinery wholesale Other wholesale Retail trade Commercial brokerage Restaurants Finance Insurance Real estate development Real estate development Real estate development Real estate development Real estate brokerage Public facilities services Hotels Lease services Tour services Recreational services Hotels Hotels Hotels Lease services Computer services Hotels Hotels Hotels Hotels Hotels Hotels Hotels Hotels Hotels Hotels Hotels Hotels Heath services Other social services Heath services	Construction Construction Services Trptservices Trptservices Trptservices Trptservices Trptservices Trptservices Trptservices Trptservices Services
47 48 49 50 51 53 55 56 57 58 59 59 60 61 61 62 63 64 63 64 65 70 72 72 73 74 75 76 68 70 72 72 73 74 80 81 81 82 85 88 83 84 85 85 89 90 91 92	Civil engineering construction Cable, pipe installation Construction, ornamentation Geological prospecting Water conservancy Railway transport Highway transport Pipeline transport Air transport Transport auxiliary Other transport Warehousing Post, telecommunication Food, beverage wholesale Power, materials, machinery wholesale Power, materials, machinery wholesale Power, materials, machinery wholesale Rotal trade Commercial brokerage Restaurants Finance Insurance Real estate development Real estate development Real estate brokerage Public facilities services Resident services Resident services Information consultancy Computer services Information consultancy Computer services Health services Social welfare Education Culture, arts Radio, television, films Scientific research General technical services State administration	Construction Construction Services Services Trptservices Trptservices Trptservices Trptservices Trptservices Trptservices Trptservices Services
47 48 49 50 51 53 55 56 57 58 56 60 61 61 62 63 64 63 64 64 65 67 70 73 73 74 75 88 60 61 61 62 63 64 83 64 83 70 72 73 77 74 75 88 80 80 81 83 83 84 83 83 84 85 85 89 90 90 91 92 93 94 95	Civil engineering construction Cable, pipe installation Construction, ornamentation Geological prospecting Water conservancy Railway transport Highway transport Pipeline transport Air transport Air transport Transport auxiliary Other transport Warehousing Post, telecommunication Food, beverage wholesale Power, materials, machinery wholesale Power, materials, machinery wholesale Other wholesale Retail trade Commercial brokerage Restaurants Finance Insurance Real estate development Real estate brokerage Public facilities services Resident services Resident services Resident services Information consultancy Computer services Hotels Lease services Recreational services Information consultancy Computer services Social welfare Education Culture, arts Reado, television, films Social films Scientific research General technical services	Construction Construction Services Services Trptservices Trptservices Trptservices Trptservices Trptservices Trptservices Trptservices Services
47 48 49 50 51 53 53 54 55 56 57 57 58 59 60 61 61 61 62 63 64 65 67 66 68 70 72 73 74 75 78 79 80 81 81 82 83 84 85 85 88 90 90 91 91 92 93 94 95 96	Civil engineering construction Cable, pipe installation Construction, ornamentation Geological prospecting Water conservancy Railway transport Highway transport Pipeline transport Air transport Air transport Transport auxiliary Other transport Transport auxiliary Other transport Food, beverage wholesale Power, materials, machinery wholesale Commercial brokerage Retail trade Commercial brokerage Retail trade Commercial brokerage Restaurants Finance Real estate development Real estate development Real estate brokerage Public facilities services Resident services Resident services Information consultancy Computer services Health services Health services Health services Sports Social welfare Education Culture, arts Readion, television, films Scientific research General technical services State administration Political party admin	Construction Construction Services Services Trptservices Trptservices Trptservices Trptservices Trptservices Trptservices Trptservices Trptservices Services
47 48 49 50 51 53 55 56 57 58 56 60 61 61 62 63 64 63 64 64 65 67 70 73 73 74 75 88 60 61 61 62 63 64 83 64 83 70 72 73 77 74 75 88 80 80 81 83 83 84 83 83 84 85 85 89 90 90 91 92 93 94 95	Civil engineering construction Cable, pipe installation Construction, ornamentation Geological prospecting Water conservancy Railway transport Highway transport Pipeline transport Air transport Air transport Transport auxiliary Other transport Warehousing Post, telecommunication Food, beverage wholesale Power, materials, machinery wholesale Power, materials, machinery wholesale Other wholesale Retail trade Commercial brokerage Restaurants Finance Insurance Real estate development Real estate brokerage Public facilities services Resident services Resident services Resident services Information consultancy Computer services Hotels Lease services Recreational services Information consultancy Computer services Social welfare Education Culture, arts Reado, television, films Social films Scientific research General technical services	Construction Construction Services Services Trptservices Trptservices Trptservices Trptservices Trptservices Trptservices Trptservices Services

## Table 8: Costa Rica

PUMS Code	Description	Sector
0	NIU (not in universe) General agricultural prod. & Agriculture	0
11 12	General agricultural prod. & Agricultur Animal breeding	e Agriculture
13	Mixed crop & animal breeding	Agriculture
14	Agri. services, except vet	Agriculture
16	Agri., ranching, hunting, etc.	Agriculture
20	Forestry, lumber extraction	Agriculture
50	Fishing, fish breeding, etc.	Agriculture
132	Non-iron metal mining	Mining
141	Rock, stone, sand quarrying	Mining
142	Other mining	Mining
151	Meat, fish, fruit, veg., oil proc.	Nondurables Nondurables
152	Dairy processing Ground flour, starch proc.	Nondurables
155	Other food items processing	Nondurables
155	Beverage processing	Nondurables
160	Tobacco processing	Nondurables
171	Textile sewing, weaving	Nondurables
172	Other textile products	Nondurables
173	Knit and crocheted goods	Nondurables
181	Clothing (except leather)	Nondurables
191	Leather prep., bags, straps	Nondurables
192	Footwear manufacturing	Nondurables
201 202	Lumber cutting, finishing Wood, cork, straw products	Nondurables Durables
202	Paper, paper products	Nondurables
210	Editing activities	Nondurables
222	Printing activities	Nondurables
241	Basic chemical products	Nondurables
242	Other chemical products	Nondurables
251	Rubber products	Nondurables
252	Plastic products	Nondurables
261	Glass products	Durables
269	Other non-metal minerals	Durables
271	Iron, steel industries	Durables
273 281	Metal foundry	Durables
281	Metal products, vapor tanks Other metal products	Durables
207	General use machinery	Machinery
292	Specialized machinery	Machinery
293	Household appliances	Electronics
312	Distribution appliances	Electronics
313	Insulated wires, cables	Electronics
314	Batteries, multi-celled	Electronics
315	Lamps, lighting equipment	Electronics
319	Other electrical appliances	Electronics
321	Electronic tubes, valves Radio, TV transmitters	Electronics ICT
331	Medical instruments	Electronics
332	Optical instruments	Electronics
343	Auto parts, engines	Transportation
351	Ship construction, repair	Transportation
353	Airplane manufacturing	Transportation
361	Furniture manufacturing	Durables
369	Other manufacturing	Durables
372	Non-metal waste recycling	Services
401	Electricity generation	Services
402 410	Gas production, distribution	Services
410	Water purification, distribution Land preparation	Construction
452	Building construction	Construction
453	Building fitting	Construction
454	Building finishing	Construction
501	Auto sales	Services
502	Auto repair	Services
503	Auto parts sales	Services
504	Motorcycle sales, repair	Services
505	Auto fuel sales	Services
510	Wholesale, commission sales	Services
511	Wholesale for payment	Services
512	Wholesale, agri. supplies	Services
513	Wholesale, household goods Wholesale, intermediates	Services
514	Wholesale, machinery, equip.	Services
010	Other wholesale	Services

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#### Table 9: Indonesia

11 11	Description	Sector
11	Food plants, agri., plantation Animal husbandry	Agriculture Agriculture
13	Combined agri. or plantation	Agriculture
14	Agri./plantation/animal husbandry	Agriculture
15	Hunting and trapping	Agriculture
20 50	Forestry Fisheries	Agriculture Agriculture
101	Coal mining, peat excavation	Mining
102	Coal briquettes	Mining
111	Oil, gas, geothermal energy manuf.	Mining
112	Services for oil and gas	Mining
120	Uranium, thorium mining	Mining
131 132	Iron ore mining Metal and tin mining	Mining
132	Stone, clay, sand excavation	Mining Mining
142	Other mining n.e.c.	Mining
151	Processed meat, fish, fruits, veg.	Nondurables
152	Dairy products	Nondurables
153	Grain mill, starch, animal feed	Nondurables
154	Other food products	Nondurables Nondurables
155	Beverages Tobacco products	Nondurables
171	Spinning, weaving textiles	Nondurables
172	Made-up textiles, carpets	Nondurables
173	Knitted, crocheted fabrics	Nondurables
174	Cotton industry	Nondurables
181	Garments except fur apparel	Nondurables
182	Dressing, dyeing of fur Tanning leather processing	Nondurables Nondurables
191 192	Tanning, leather processing Footwear	Nondurables
201	Sawmilling	Durables
202	Wood, rattan, bamboo products	Durables
210	Paper, paper products	Nondurables
221	Publishing	Nondurables
222	Printing, related activities	Nondurables
223	Recorded media reproduction Coal based industries	Nondurables Nondurables
231 232	Oil refineries, oil manuf.	Nondurables
241	Basic chemicals	Nondurables
242	Other chemicals	Nondurables
243	Manmade fibres	Nondurables
251	Rubber products	Nondurables
252	Plastic products	Nondurables Durables
262	Glass products Porcelain products	Durables
263	Clay products	Durables
264	Cement, lime, gypsum products	Durables
265	Stone products	Durables
266	Asbestos products	Durables
269	Other non-metal minerals	Durables
271 272	Basic iron, steel Precious, non-ferrous metals	Durables Durables
272	Metal foundries	Durables
281	Structural metal products	Durables
289	Other metal products	Durables
291	General purpose machinery	Machinery
292	Special purpose machinery	Machinery Electronics
300	Domestic appliances n.e.c. Office, accounting equipment	Electronics
311	Electric motors, transformers	Electronics
312	Electricity distribution	Electronics
313	Insulated wire, cable	Electronics
314	Batteries	Electronics
315 319	Lighting equipment	Electronics Electronics
319	Other electrical equipment Electronic valves, tubes	Electronics
322	TV, radio transmitters	ICT
323	Radio, TV receivers	ICT
331	Medical, measuring appliances	Electronics
	Optical instruments	Electronics
332		171
333	Watches, clocks	Electronics
	Automobiles	Transportation
333 341		
333 341 342	Automobiles Auto bodies, trailers	Transportation Transportation
333 341 342 343 351 352	Automobiles Auto bodies, trailers Auto parts, accessories Shipbuilding, repair Train manuf., spare parts	Transportation Transportation Transportation Transportation Transportation
333 341 342 343 351 352 353	Automobiles Auto bodies, trailers Auto parts, accessories Shipbuilding, repair Train manuf., spare parts Aircraft manuf., repair	Transportation Transportation Transportation Transportation Transportation
333 341 342 343 351 352 353 359	Automobiles Auto bodies, trailers Auto parts, accessories Shipbuilding, repair Train manuf, spare parts Aircraft manuf, repair Other transport equipment	Transportation Transportation Transportation Transportation Transportation Transportation
333 341 342 343 351 352 353	Automobiles Auto bodies, trailers Auto parts, accessories Shipbuilding, repair Train manuf., spare parts Aircraft manuf., repair Other transport equipment Furniture	Transportation Transportation Transportation Transportation Transportation Transportation Durables
333 341 342 343 351 352 353 359 361	Automobiles Auto bodies, trailers Auto parts, accessories Shipbuilding, repair Train manuf, spare parts Aircraft manuf, repair Other transport equipment	Transportation Transportation Transportation Transportation Transportation Transportation
333           341           342           343           351           352           353           359           361           369	Automobiles Auto bodies, trailers Auto parts, accessories Shipbuilding, repair Train manuf., spare parts Aircraft manuf., repair Other transport equipment Furmiture Jewelry	Transportation Transportation Transportation Transportation Transportation Transportation Durables Durables
333           341           342           343           351           352           353           359           361           369           371           372           401	Automobiles Auto bodies, trailers Auto parts, accessories Shipbuilding, repair Train manuf, spare parts Aircraft manuf, repair Other transport equipment Furniture Jewelry Metal recycling Non-metal recycling Electric power	Transportation Transportation Transportation Transportation Transportation Transportation Transportation Durables Durables Services Services Services
333           341           342           343           351           352           353           359           361           369           371           372           401           402	Automobiles Auto bodies, trailers Auto parts, accessories Shipbuilding, repair Train manuf., spare parts Aircraft manuf., repair Other transport equipment Furniture Jewelry Metal recycling Non-metal recycling Electric power Gas	Transportation Transportation Transportation Transportation Transportation Transportation Durables Durables Services Services Services Services
333           341           342           343           351           352           353           359           361           369           371           372           401           402           403	Automobiles Auto bodies, trailers Auto parts, accessories Shipbuilding, repair Train manuf, separe parts Aircraft manuf, repair Other transport equipment Furniture Jewelry Metal recycling Non-metal recycling Electric power Gas Steam, hot springs	Transportation Transportation Transportation Transportation Transportation Transportation Transportation Durables Services Services Services Services Services Services
333           341           342           343           351           352           353           359           361           369           371           372           401           402           403           410	Automobiles Auto bodies, trailers Auto parts, accessories Shipbuilding, repair Train manuf, spare parts Aircraft manuf, repair Other transport equipment Furniture Jewelry Metal recycling Non-metal recycling Electric power Gas Steam, hot springs Drinking water supply	Transportation Transportation Transportation Transportation Transportation Transportation Transportation Durables Services Services Services Services Services Services Services Services
333           341           342           343           351           352           353           361           369           371           372           401           402           403           410           451	Automobiles Auto bodies, trailers Auto parts, accessories Shipbuilding, repair Train manuf, spare parts Aircraft manuf, repair Other transport equipment Furniture Jewelry Metal recycling Non-metal recycling Electric power Gas Steam, hot springs Drinking water supply Land preparation	Transportation Transportation Transportation Transportation Transportation Transportation Transportation Durables Durables Services Services Services Services Services Services Services Services Services Services
333           341           342           343           351           352           353           359           361           369           371           372           401           402           403           410	Automobiles Auto bodies, trailers Auto parts, accessories Shipbuilding, repair Train manuf, spare parts Aircraft manuf, repair Other transport equipment Furniture Jewelry Metal recycling Non-metal recycling Electric power Gas Steam, hot springs Drinking water supply	Transportation Transportation Transportation Transportation Transportation Transportation Transportation Durables Services Services Services Services Services Services Services Services
333           341           342           343           351           352           353           369           361           369           371           372           401           402           403           410           451           452	Automobiles Auto bodies, trailers Auto parts, accessories Shipbuilding, repair Train manuf, separe parts Aircraft manuf, repair Other transport equipment Furriture Jewelry Metal recycling Electric power Gas Steam, hot springs Drinking water supply Land preparation Building construction	Transportation Transportation Transportation Transportation Transportation Transportation Durables Durables Services Ser
333           341           342           343           351           352           333           359           361           369           371           372           401           402           403           410           451           452           453	Automobiles Auto bodies, trailers Auto parts, accessories Shipbuilding, repair Train manuf, separe parts Aircraft manuf, repair Other transport equipment Furniture Jewelry Metal necycling Non-metal recycling Electric power Gas Stean, hot springs Drinking water supply Land preparation Building construction	Transportation Transportation Transportation Transportation Transportation Transportation Durables Durables Durables Services Ser
333           341           342           343           351           352           353           361           369           371           372           401           402           403           410           451           452           453           455           501	Automobiles Auto bodies, trailers Auto parts, accessories Shipbuilding, repair Train manuf, separe parts Aircraft manuf, repair Other transport equipment Furnitur Jewelry Metal recycling Non-metal recycling Electric power Gas Steam, hot springs Drinking water supply Land preparation Building construction Building insibing Leasing construction equip. Auto trading	Transportation Transportation Transportation Transportation Transportation Transportation Durables Durables Durables Services Services Services Services Services Services Services Services Construction Construction Construction Construction Construction Services
333           341           342           343           351           352           353           359           361           369           371           372           401           402           403           410           451           452           453           454           455           501           502	Automobiles Auto bodies, trailers Auto parts, accessories Shipbuilding, repair Train manuf, spare parts Aircraft manuf, repair Other transport equipment Furniture Jewelry Metal recycling Non-metal recycling Electric power Gas Steam, hot springs Drinking water supply Land preparation Building construction Building installation Building finishing Leasing construction equip. Auto trading Auto maintenance, repair	Transportation Transportation Transportation Transportation Transportation Transportation Durables Durables Services Services Services Services Services Services Services Services Construction Construction Construction Construction Services Services
333           341           342           343           351           352           353           359           361           369           371           372           401           402           403           410           451           451           452           501           502           503	Automobiles Auto bodies, trailers Auto parts, accessories Shipbuilding, repair Train manuf, separe parts Aircraft manuf, repair Other transport equipment Furriture Jewelry Metal recycling Non-metal recycling Electric power Gas Steam, hot springs Drinking water supply Land preparation Building installation Building finishing Leasing construction Building finishing Leasing construction equip. Auto trading Auto maintenance, repair Auto spare parts	Transportation Transportation Transportation Transportation Transportation Transportation Transportation Durables Durables Durables Services Services Services Services Services Services Services Construction Construction Construction Construction Services Services Services Services Services Services Services Services Services Services Services Services Services Services Services
333           341           342           343           351           352           353           359           361           369           371           372           401           402           403           410           451           452           453           455           501           502           503           504	Automobiles Auto bodies, trailers Auto parts, accessories Shipbuilding, repair Train manuf, spare parts Aircraft manuf, repair Other transport equipment Furniture Jewelry Metal recycling Electric power Gas Steam, hot springs Drinking water supply Land preparation Building construction Building finishing Leasing construction equip. Auto trading Auto maintenance, repair Auto spare parts Motorcycle parts, accessories	Transportation Transportation Transportation Transportation Transportation Transportation Durables Durables Services Services Services Services Services Services Services Services Construction Construction Construction Construction Services Services Services Services Services Services Services Services Services Services Services Services Services Services Services Services Services Services
333           341           342           343           351           352           353           359           361           369           371           372           401           402           403           410           451           451           452           501           502           503	Automobiles Auto bodies, trailers Auto parts, accessories Shipbuilding, repair Train manuf, separe parts Aircraft manuf, repair Other transport equipment Furriture Jewelry Metal recycling Non-metal recycling Electric power Gas Steam, hot springs Drinking water supply Land preparation Building installation Building finishing Leasing construction Building finishing Leasing construction equip. Auto trading Auto maintenance, repair Auto spare parts	Transportation Transportation Transportation Transportation Transportation Transportation Transportation Durables Durables Durables Services Services Services Services Services Services Services Construction Construction Construction Construction Services Services Services Services Services Services Services Services Services Services Services Services Services Services Services
333           341           342           343           351           352           353           359           361           369           371           372           401           402           403           410           451           452           453           454           455           501           502           503           504           505	Automobiles Auto bodies, trailers Auto parts, accessories Shipbuilding, repair Train manuf, separe parts Aircraft manuf, repair Other transport equipment Furniture Jewelry Metal necycling Electric power Gas Steam, hot springs Drinking water supply Land preparation Building installation Building installation Building installation Building construction Building finishing Leasing construction equip. Auto trading Auto maintenance, repair Auto spare parts Motorcycle parts, accessories Fuel retail	Transportation Transportation Transportation Transportation Transportation Transportation Durables Durables Durables Services Services Services Services Services Services Services Construction Construction Construction Construction Services Services Services Services Services Services Services Services Services Services Services Services Services Services Services Services

JMS Code	Description	Sector
515	Machinery trade	Services
519	Other wholesale trade	Services
521	Retail products indoors	Services
522	Food, beverages, tobacco indoors	Services
523	Non-food retail indoors	Services
524	Second-hand goods retail	Services
525	Outdoor trade	Services
526	Household goods repair	Services
531	Export trade by fee	Services
532	Agri. material, live animals export	Services
533	Textile, clothes export	Services
534	Intermediate trade, non-food export	Services
535	Machinery export	Services
539	Other export trade	Services
541	Import trade by fee	Services
542	Agri. material, live animals import	Services
543	Textile, clothes import	Services
544	Intermediate trade, non-food import	Services
545	Machinery import	Services
549	Other import trade	Services
551	Accommodation	Services
552	Restaurant, bar, catering	Services
601	Railways	Trptservices
602	Road transport	Trptservices
603	Pipeline transport	Trptservices
611	Sea transport	Trptservices
612	River, lake transport	Trptservices
621	Scheduled air transport	Trptservices
622	Unscheduled air transport	Trptservices
631	Stevedoring	Trptservices
632	Storage, cold storage	Trptservices
633	Other transport support	Trptservices
634	Travel bureaus	Trptservices
635	Packaging, courier services	Trptservices
639	Other transport, travel support	Trptservices
641	Post, courier services	Trptservices
642	Telecommunications	ICT
651	Financial intermediaries	Services
659	Other financial services	Services
660	Insurance, pension funds	Services
671	Financial intermediation support	Services
672	Insurance, pension support	Services
701	Private real estate	Services
702	Real estate by fee/contract	Services
702 703	Real estate by fee/contract Tourist real estate	
		Services
703	Tourist real estate	Services Services
703 711	Tourist real estate Transport equip. rental	Services Services ICT
703 711 712	Tourist real estate Transport equip. rental Other machine rental Other goods rental	Services Services ICT ICT
703       711       712       713       721	Tourist real estate Transport equip. rental Other machine rental Other goods rental Hardware consulting	Services Services ICT ICT ICT ICT
703       711       712       713       721       722	Tourist real estate Transport equip. rental Other machine rental Other goods rental Hardware consulting Software consulting	Services Services ICT ICT ICT ICT ICT
703           711           712           713           721           722           723	Tourist real estate Transport equip. rental Other machine rental Other goods rental Hardware consulting Software consulting Data processing	Services Services ICT ICT ICT ICT ICT ICT
703       711       712       713       721       722       723       724	Tourist real estate Transport equip. rental Other machine rental Other goods rental Hardware consulting Software consulting Data processing Database services	Services Services ICT ICT ICT ICT ICT ICT ICT
703       711       712       713       721       722       723       724       725	Tourist real estate Transport equip. rental Other machine rental Other goods rental Hardware consulting Data processing Database services Office equip., computer repair	Services Services ICT ICT ICT ICT ICT ICT ICT ICT
703       711       712       713       721       722       723       724       725       729	Tourist real estate Transport equip. rental Other machine rental Other goods rental Hardware consulting Software consulting Data processing Database services Office equip., computer repair Other computer-related activities	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
703         711         712         713         721         722         723         724         725         729         731	Tourist real estate Transport equip. rental Other machine rental Other goods rental Hardware consulting Software consulting Data processing Database services Office equip., computer repair Other computer-related activities R&D in science, tech	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
703           711           712           713           721           722           723           724           725           729           731           732	Tourist real estate Transport equip. rental Other machine rental Other goods rental Hardware consulting Software consulting Data processing Database services Office equip., computer repair Other computer-related activities R&D in science, tech R&D in social sciences	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
703           711           712           713           721           722           723           724           725           729           731           732           741	Tourist real estate Transport equip. rental Other machine rental Other goods rental Hardware consulting Software consulting Data processing Database services Office equip., computer repair Other computer-related activities R&D in science, tech R&D in social sciences Law, accounting, tax, mktg. services	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
703           711           712           713           721           722           723           724           725           729           731           732           741           742	Tourist real estate Transport equip. rental Other machine rental Other goods rental Hardware consulting Software consulting Data processing Database services Office equip., computer repair Other computer-related activities R&D in science, tech R&D in social sciences Law, accounting, tax, mktg. services Arch., eng., analysis, testing	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
703           711           712           713           721           722           723           724           725           729           731           732           741           742           743	Tourist real estate Transport equip. rental Other machine rental Other goods rental Hardware consulting Software consulting Data processing Database services Office equip., computer repair Other computer-related activities R&D in social sciences Law, accounting, tax, mktg. services Arch., eng., analysis, testing Advertising	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
703           711           712           713           721           722           723           724           725           729           731           732           741           742           743           749	Tourist real estate Transport equip. rental Other machine rental Other goods rental Hardware consulting Data processing Database services Office equip., computer repair Other computer-related activities R&D in science, tech R&D in social sciences Law, accounting, tax, mktg. services Arch., eng., analysis, testing Advertising Other company services	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
703           711           712           713           721           723           724           725           729           731           732           741           742           743           749           751	Tourist real estate Transport equip. rental Other machine rental Other goods rental Hardware consulting Software consulting Data processing Database services Office equip., computer repair Other computer-related activities R&D in social sciences Law, accounting, tax, mktg. services Arch., eng., analysis, testing Advertising Other company services Government admin.	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
703           711           712           713           712           713           721           722           723           724           725           729           731           732           741           743           749           751           752	Tourist real estate Transport equip. rental Other machine rental Other goods rental Hardware consulting Software consulting Data processing Database services Office equip., computer repair Other computer-related activities R&D in science, tech R&D in science, tech R&D in sciel sciences Law, accounting, tax, mktg. services Arch., eng., analysis, testing Advertising Other company services Government admin. International relations, defense	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
703           711           712           713           711           712           713           721           723           724           725           729           731           732           741           742           743           749           751           752           753	Tourist real estate Transport equip. rental Other machine rental Other goods rental Hardware consulting Software consulting Data processing Database services Office equip, computer repair Other computer-related activities R&D in science, tech R&D in social sciences Law, accounting, tax, mktg. services Arch., eng, analysis, testing Advertising Other company services Government admin. International relations, defense Social security	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
703           711           712           713           721           722           723           724           725           729           731           732           741           742           743           749           751           752           753           801	Tourist real estate Transport equip. rental Other machine rental Other goods rental Hardware consulting Software consulting Data processing Database services Othic equip., computer repair Other computer related activities R&D in social sciences Law, accounting, tax, mktg. services Arch., eng., analysis, testing Advertising Other company services Government admin. International relations, defense Social security Primary school	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
703           711           712           713           721           722           723           724           725           729           731           732           741           742           743           749           751           753           801           802	Tourist real estate Transport equip. rental Other machine rental Other goods rental Hardware consulting Software consulting Data processing Database services Office equip., computer repair Other computer-related activities R&D in social sciences Law, accounting, tax, mktg. services Arch., eng., analysis, testing Advertising Other company services Government admin. International relations, defense Social security Primary school High school	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
703           711           712           713           721           722           723           724           725           729           731           732           741           742           743           749           751           752           753           801	Tourist real estate Transport equip. rental Other machine rental Other goods rental Hardware consulting Software consulting Data processing Database services Othic equip., computer repair Other computer related activities R&D in social sciences Law, accounting, tax, mktg. services Arch., eng., analysis, testing Advertising Other company services Government admin. International relations, defense Social security Primary school	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
703           711           712           713           721           722           723           724           725           729           731           732           741           742           743           749           751           753           801           802	Tourist real estate Transport equip. rental Other machine rental Other goods rental Hardware consulting Software consulting Data processing Database services Office equip., computer repair Other computer-related activities R&D in social sciences Law, accounting, tax, mktg. services Arch., eng., analysis, testing Advertising Other company services Government admin. International relations, defense Social security Primary school High school	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
703           711           712           713           721           722           723           724           725           729           731           732           741           742           743           749           751           752           753           801           802           803	Tourist real estate Transport equip. rental Other machine rental Other goods rental Hardware consulting Software consulting Data processing Database services Office equip., computer repair Other computer-related activities R&D in science, tech R&D in social sciences Law, accounting, tax, mktg, services Arch., eng, analysis, testing Advertising Other company services Government admin. International relations, defense Social security Primary school High school Tertiary school	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
703           711           712           713           721           723           724           725           729           731           732           741           742           743           749           751           752           801           802           803           809	Tourist real estate Transport equip. rental Other machine rental Other goods rental Hardware consulting Data processing Database services Office equip., computer repair Other computer-related activities R&D in social science, tech R&D in social sciences Law, accounting, tax, mktg. services Arch., eng., analysis, testing Other company services Government admin. International relations, defense Social security Primary school High school Tertiary school Education services n.e.c.	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
703           711           712           713           721           723           724           725           729           731           732           741           742           743           749           751           752           753           801           802           803           809           851	Tourist real estate Transport equip. rental Other machine rental Other goods rental Hardware consulting Data processing Data processing Database services Office equip., computer repair Other computer-related activities R&D in social sciences Law, accounting, tax, mktg. services Arch., eng., analysis, testing Other company services Government admin. International relations, defense Social security Primary school High school Tertiary school Education services n.e.c. Health services	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
703           711           712           713           721           722           723           724           725           729           731           732           741           742           743           751           752           753           801           802           803           809           881           852           853	Tourist real estate Transport equip. rental Other machine rental Other goods rental Hardware consulting Data processing Database services Office equip, computer repair Other computer-related activities R&D in social sciences Law, accounting, tax, mktg. services Arch., eng, analysis, testing Advertising Other company services Government admin. International relations, defense Social security Primary school High school Tertiary school Education services Veterinary services Veterinary services Social welfare	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
703           711           712           713           721           722           723           724           725           729           731           732           731           741           742           743           751           753           801           802           803           809           851           852           853           900	Tourist real estate Transport equip. rental Other machine rental Other goods rental Hardware consulting Software consulting Data processing Database services Office equip., computer repair Other computer related activities R&D in science, tech R&D in science, tech R&D in social sciences Law, accounting, tax, mktg, services Arch., eng., analysis, testing Advertising Other company services Government admin. International relations, defense Social security Primary school High school Tertiary school Education services n.e.c. Health services Veterinary services Social welfare Cleaning services	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
703           711           712           713           721           723           724           725           729           731           732           741           742           743           749           751           752           753           801           802           803           809           851           852           853           900           911	Tourist real estate Transport equip. rental Other machine rental Other goods rental Hardware consulting Software consulting Data processing Database services Office equip., computer repair Other computer related activities R&D in social sciences Law, accounting, tax, mktg. services Arch., eng., analysis, testing Advertising Other company services Government admin. International relations, defense Social security Primary school High school Tertiary school Education services n.e.c. Health services Veterinary services Social welfare Cleaning services Business orgs.	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
703           711           712           713           721           723           724           725           729           731           732           741           742           743           749           751           752           801           802           803           809           851           852           900           911           912	Tourist real estate Transport equip. rental Other machine rental Other goods rental Hardware consulting Data processing Data processing Database services Office equip., computer repair Other computer-related activities R&D in science, tech R&D in social sciences Law, accounting, tax, mktg. services Arch., eng., analysis, testing Advertising Other company services Government admin. International relations, defense Social security Primary school High school High school Education services n.e.c. Health services Veterinary services Veterinary services Cleaning services Business orgs. Labor orgs.	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
703           711           712           713           721           723           724           725           729           731           732           741           742           743           749           751           752           753           801           802           803           809           851           852           900           911           912           919	Tourist real estate Transport equip. rental Other machine rental Other goods rental Hardware consulting Software consulting Data processing Database services Office equip., computer repair Other computer-related activities R&D in science, tech Righ school Tertiary school Education services Social welfare Cleaning services Business orgs. Labor orgs. Other organizations	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
703           711           712           713           721           722           723           724           725           729           731           732           741           742           743           752           753           801           802           803           809           851           852           853           900           911           912           919           921	Tourist real estate Transport equip. rental Other machine rental Other goods rental Hardware consulting Data processing Database services Office equip, computer repair Other computer-related activities R&D in science, tech R&D in social sciences Law, accounting, tax, mktg. services Arch., eng, analysis, testing Advertising Other company services Government admin. International relations, defense Social security Primary school High school Tertiary school Education services n.e.c. Health services Veterinary services Social welfare Cleaning services Business orgs. Labor orgs. Other organizations	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
703           711           712           713           721           722           723           724           725           731           732           731           741           742           743           751           752           753           801           802           803           809           851           852           853           900           911           912           921	Tourist real estate Transport equip. rental Other machine rental Other goods rental Hardware consulting Data processing Database services Office equip, computer repair Other computer-related activities R&D in social sciences Law, accounting, tax, mktg. services Arch., eng., analysis, testing Advertising Other company services Government admin. International relations, defense Social security Primary school High school Tertiary school Education services Veterinary services Social welfare Cleaning services Business orgs. Labor orgs. Other organizations	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
703           711           712           713           721           722           723           724           725           729           731           732           741           742           743           752           753           801           802           803           809           851           852           853           900           911           912           919           921	Tourist real estate Transport equip. rental Other machine rental Other goods rental Hardware consulting Data processing Database services Office equip, computer repair Other computer-related activities R&D in science, tech R&D in social sciences Law, accounting, tax, mktg. services Arch., eng, analysis, testing Advertising Other company services Government admin. International relations, defense Social security Primary school High school Tertiary school Education services n.e.c. Health services Veterinary services Social welfare Cleaning services Business orgs. Labor orgs. Other organizations	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
703           711           712           713           721           722           723           724           725           731           732           731           741           742           743           751           752           753           801           802           803           809           851           852           853           900           911           912           921	Tourist real estate Transport equip. rental Other machine rental Other goods rental Hardware consulting Data processing Database services Office equip, computer repair Other computer-related activities R&D in social sciences Law, accounting, tax, mktg. services Arch., eng., analysis, testing Advertising Other company services Government admin. International relations, defense Social security Primary school High school Tertiary school Education services Veterinary services Social welfare Cleaning services Business orgs. Labor orgs. Other organizations	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
703           711           712           713           721           722           723           724           725           729           731           732           731           741           742           743           749           751           753           801           802           803           809           851           852           853           900           911           912           921           922           923	Tourist real estate Transport equip. rental Other machine rental Other goods rental Hardware consulting Software consulting Data processing Database services Office equip., computer repair Other computer related activities R&D in science, tech R&D in social sciences Law, accounting, tax, mktg. services Arch., eng., analysis, testing Advertising Other company services Government admin. International relations, defense Social security Primary school High school Tertiary school Education services Neterinary services Social welfare Cleaning services Social welfare Cleaning services Business orgs. Labor orgs. Other organizations Film, radio, TV News services Libraries, archives, museums	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
703           711           712           713           721           723           724           725           729           731           732           741           742           743           749           751           753           801           802           803           809           851           853           900           911           912           921           922           923           924	Tourist real estate Transport equip. rental Other machine rental Other goods rental Hardware consulting Software consulting Data processing Database services Office equip., computer repair Other computer related activities R&D in social sciences Law, accounting, tax, mktg. services Arch., eng., analysis, testing Advertising Other company services Government admin. International relations, defense Social security Primary school High school Tertiary school Education services n.e.c. Health services Social wervices Cleaning services Social wervices Cleaning services Social security Deter company services Cleaning services Cleaning services Cleaning services Dother organizations Film, radio, TV News services Libraries, archives, museums Sports, recreation	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
703           711           712           713           721           723           724           725           729           731           732           741           742           743           749           751           753           801           802           803           809           851           852           853           900           911           912           919           921           922           923           924	Tourist real estate Transport equip. rental Other machine rental Other goods rental Hardware consulting Software consulting Data processing Database services Office equip., computer repair Other computer-related activities R&D in science, tech R&D in science, tech R&D in social sciences Law, accounting, tax, mktg, services Arch., eng, analysis, testing Advertising Other company services Government admin. International relations, defense Social security Primary school Education services n.e.c. Health services Veterinary services Cleaning services Cleaning services Cleaning services Cleaning services Cleaning services Cher organizations Film, radio, TV News services Libraries, archives, museums Sports, recreation Other service activities	Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
703           711           712           713           721           723           724           725           729           731           732           741           742           743           749           751           751           752           803           809           851           852           853           900           911           912           913           923           924           930           950	Tourist real estate Transport equip. rental Other machine rental Other goods rental Hardware consulting Data processing Database services Office equip., computer repair Other computer-related activities R&D in science, tech Restristing Other company services Social security Primary school High school Tertiary school Education services n.e.c. Health services Social welfare Cleaning services Business orgs. Labor orgs. Other organizations Film, radio, TV News services Libraries, archives, museums Sports, recreation Other service activities Personal household services	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT

21

## Table 10: India

MS Code	Description	Sector
11	Growing of crops Farming of animals	Agriculture Agriculture
13	Mixed farming	Agriculture
14	Agri. & animal husbandry	Agriculture
15	Hunting, trapping	Agriculture
20	Forestry, logging	Agriculture
50	Fishing operations	Agriculture
101	Hard coal mining	Mining
102	Lignite mining	Mining
103	Peat extraction	Mining Mining
111	Crude petroleum extraction Oil, gas services	Mining
120	Uranium, thorium mining	Mining
131	Iron ore mining	Mining
132	Non-ferrous metal ores	Mining
141	Quarrying of stone, sand	Mining
142	Mining, quarrying n.e.c.	Mining
151	Meat, fish, fruit processing	Nondurables
152 153	Dairy products Grain mill products	Nondurables Nondurables
153	Other food products	Nondurables
155	Beverages	Nondurables
160	Tobacco products	Nondurables
171	Textile spinning, weaving	Nondurables
172	Other textiles	Nondurables
173	Knitted fabrics	Nondurables
181	Wearing apparel	Nondurables
182	Fur dressing, dyeing	Nondurables Nondurables
191 192	Leather tanning Footwear manufacturing	Nondurables
201	Sawmilling, planing	Durables
202	Wood, cork products	Durables
210	Paper products	Nondurables
221	Publishing	Nondurables
222	Printing activities	Nondurables
223	Recorded media reproduction	Nondurables
231	Coke oven products	Nondurables
232	Refined petroleum products Nuclear fuel processing	Nondurables Nondurables
233	Basic chemicals	Nondurables
242	Other chemicals	Nondurables
243	Man-made fibers	Nondurables
251	Rubber products	Nondurables
252	Plastic products	Nondurables
261	Glass products	Durables
269	Non-metallic mineral products	Durables
271 272	Basic iron, steel Precious, non-ferrous metals	Durables Durables
273	Metal casting	Durables
281	Structural metal products	Durables
289	Other fabricated metal products	Durables
291	General purpose machinery	Machinery
292	Special purpose machinery	Machinery
293	Domestic appliances	Electronics
300 311	Office, accounting machinery Electric motors transformers	Electronics
311 312	Electric motors, transformers Electricity distribution	Electronics
312	Insulated wire, cable	Electronics
314	Batteries, accumulators	Electronics
315	Electric lamps, lighting	Electronics
319	Other electrical equipment	Electronics
321	Electronic valves, tubes	Electronics
322	TV, radio transmitters	ICT
323 331	TV, radio receivers Medical appliances	ICT Electronics
332	Optical instruments	Electronics
333	Watches, clocks	Electronics
341	Motor vehicles	Transportation
342	Vehicle bodies, trailers	Transportation
343	Vehicle parts, engines	Transportation
351	Ship, boat building	Transportation
352	Rail, tramway locomotives	Transportation
353 359	Aircraft, spacecraft Other transport equipment	Transportation Transportation
361	Furniture manufacturing	Durables
369	Other manufacturing	Durables
371	Metal recycling	Services
372	Non-metal recycling	Services
401	Electricity production	Services
402	Gas production, distribution	Services
403	Steam, hot water supply	Services
410	Water purification, distribution	Services
451	Site preparation Building construction	Construction
452 453	Building construction Building installation	Construction Construction
453	Building completion	Construction

UMS Code	Description	Sector
501	Motor vehicle sales	Services
502	Motor vehicle repair	Services
503 504	Motor vehicle parts sales Motorcycle sales, repair	Services Services
504	Automotive fuel retail	Services
511	Wholesale trade by fee	Services
512	Agricultural material wholesale	Services
513	Household goods wholesale	Services
514	Non-agricultural wholesale	Services
515	Machinery wholesale	Services
519	Other wholesale	Services
521	Non-specialized retail trade	Services
522	Food, beverages retail	Services
523	Other retail trade	Services
524	Second-hand goods retail	Services
525	Retail trade not in stores	Services
526	Repair of personal goods	Services
551	Hotels, camps	Services
552	Restaurants, bars	Services
601	Rail transport	Trptservic
602	Other land transport	Trptservic
603	Pipeline transport	Trptservic
611	Sea transport	Trptservic
612	Inland water transport	Trptservic
621	Scheduled air transport	Trptservic
622	Non-scheduled air transport	Trptservic
630	Transport support	Trptservic
641	Post, courier activities	Trptservic
	Telecommunications	ICT
651 659	Monetary intermediation	Services
660	Other financial intermediation	Services
671	Insurance, pension funding Financial support services	Services
672	Insurance support services	Services
701	Real estate activities	Services
702	Real estate contract basis	Services
711	Transport equipment rental	ICT
712	Machinery rental	ICT
713	Personal goods rental	ICT
721	Hardware consultancy	ICT
722	Software consultancy	ICT
723	Data processing	ICT
724	Database activities	ICT
725	Office machinery repair	ICT
729	Other computer activities	ICT
731	R&D in natural sciences	ICT
732	R&D in social sciences	ICT
741	Legal, accounting, tax services	ICT
742	Architectural, engineering services	ICT
743	Advertising services	ICT
749	Other business activities	ICT
751	State administration	Services
752	Community services	Services
	Social security activities	Services
753	,	
753 801	Primary education	Services
753	Primary education General secondary education	Services Services
753 801 802 803	Primary education General secondary education Higher education	Services Services
753 801 802 803 809	Primary education General secondary education Higher education Adult education	Services Services Services
753 801 802 803 809 851	Primary education General secondary education Higher education Adult education Human health activities	Services Services Services Services
753 801 802 803 809 851 852	Primary education General secondary education Higher education Adult education Human health activities Veterinary activities	Services Services Services Services Services
753 801 802 803 809 851 852 853	Primary education General secondary education Higher education Adult education Human health activities Veterinary activities Social work activities	Services Services Services Services Services Services
753 801 802 803 809 851 852 853 900	Primary education General secondary education Higher education Adult education Human health activities Veterinary activities Social work activities Sewage, refuse disposal	Services Services Services Services Services Services Services
753 801 802 803 809 851 852 853 900 911	Primary education General secondary education Higher education Adult education Human health activities Veterinary activities Social work activities Sewage, refuse disposal Business, employer organizations	Services Services Services Services Services Services Services Services
753 801 802 803 809 851 852 853 900 911 912	Primary education General secondary education Higher education Adult education Human health activities Veterinary activities Social work activities Sewage, refuse disposal Businese, employer organizations Trade union activities	Services Services Services Services Services Services Services Services Services
753 801 802 803 809 851 852 853 900 911 912 919	Primary education General secondary education Higher education Adult education Human health activities Veterinary activities Social work activities Sewage, refuse disposal Business, employer organizations Trade union activities Other membership organizations	Services Services Services Services Services Services Services Services Services Services Services
753 801 802 803 809 851 852 853 900 911 912 919 921	Primary education General secondary education Higher education Adult education Human health activities Veterinary activities Social work activities Sewage, refuse disposal Business, employer organizations Trade union activities Other membership organizations Motion picture, radio, TV	Services Services Services Services Services Services Services Services Services Services Services
753           801           802           803           809           851           852           853           900           911           912           919           921           922	Primary education General secondary education Higher education Adult education Human health activities Social work activities Social work activities Social work activities Sewage, refuse disposal Business, employer organizations Trade union activities Other membership organizations Motion picture, radio, TV News agency activities	Services Services Services Services Services Services Services Services Services Services Services
753           801           802           803           809           851           852           853           900           911           912           919           921           922           923	Primary education General secondary education Higher education Adult education Human health activities Veterinary activities Social work activities Sewage, refuse disposal Business, employer organizations Trade union activities Other membership organizations Motion picture, radio, TV News agency activities Libraries, museums	Services Services Services Services Services Services Services Services Services Services ICT ICT Services
753 801 802 803 809 851 852 853 900 911 912 919 912 912 921 922 923 924	Primary education General secondary education Higher education Adult education Human health activities Veterinary activities Social vork activities Sewage, refuse disposal Business, employer organizations Trade union activities Other membership organizations Motion picture, radio, TV News agency activities Libraries, museums Sports, recreation	Services Services Services Services Services Services Services Services Services ICT ICT Services Services
753 801 802 803 809 851 852 853 900 911 912 919 912 919 921 922 923 924 930	Primary education General secondary education Higher education Adult education Human health activities Veterinary activities Social work activities Social work activities Social work activities Social work activities Social union activities Other membership organizations Motion picture, radio, TV News agency activities Libraries, museums Sports, recreation Other service activities	Services Services Services Services Services Services Services Services Services ICT ICT Services Services Services Services Services
753 801 802 803 809 851 852 853 900 911 912 919 912 912 921 922 923 924	Primary education General secondary education Higher education Adult education Human health activities Veterinary activities Social vork activities Sewage, refuse disposal Business, employer organizations Trade union activities Other membership organizations Motion picture, radio, TV News agency activities Libraries, museums Sports, recreation	Services Services Services Services Services Services Services Services Services ICT ICT Services Services

#### Table 11: Morocco

UMS Code	IPUMS Description	Aggregate Sect
1	Agriculture, hunting, and similar services	Agriculture
2	Sylviculture, forestry, similar services	Agriculture
5	Fishing, aquaculture	Agriculture
10	Lignite, coal, peat extraction	Mining
11	Hydrocarbon extraction, and similar services	Mining
13	Metallic mineral extraction, working and enrichment	Mining
14	Other extraction industries	Mining
15	Food industry	Nondurables
16	Tobacco industry	Nondurables
17	Textile industry	Nondurables
18	Clothing and fur industry	Nondurables
19	Leather and shoe industry	Nondurables
20	Woodwork and wood products production	Durables
21	Paper and carton production	Nondurables
22	Publishing, printing, reproduction	Nondurables
23	Coke, refinery, nuclear industry	Nondurables
24	Chemical industry	Nondurables
25	Rubber and plastic industry	Nondurables
26	Other non-metallic mineral products manufacturing	Durables
27	Metallurgy	Durables
28	Metal works	Durables
29	Machine and equipment manufacturing	Machinery
30	Office machine and informatics materials manufacturing	Electronics
31	Machine and electric appliances manufacturing	Electronics
32	Television and radio appliances manufacturing	Electronics
33	Medical, precision, and optic instruments manufacturing	Electronics
34	Motor vehicle industry	Transportation
35	Other transportation materials manufacturing	Transportation
36	Furniture and various industries manufacturing	Durables
40	Electricity, gas, heating production and distribution	Services
41	Water collection, treatment and supply	Services
45	Construction and public works	Construction
50	Motor vehicle sale and repair	Services
51	Wholesale and intermediate trade	Services
52	Retail sale and repair of domestic objects	Services
55	Hotels and restaurants	Services
60	Land transportation	Services
61	Water transportation	Services
	1	
62 63	Air transportation Other transportation services	Services Services
	1	
64	Postal system and telecommunications	ICT
65	Finance intermediate	Services
66	Insurance	Services
67	Other finance and insurance activities	Services
70	Real estate	Services
71	No-operator rental	ICT
72	Informatics	ICT
73	Research and development	ICT
74	Business-oriented services	ICT
75	Public administration	Services
80	Education	Services
85	Health and social work	Services
90	Sewage and waste management	Services
91	Activities in associations	Services
92	Entertainment, cultural, sport activities	Services
93	Personal services	Services
95	Domestic services	Services
99	Extra-territorial activities	Services
998	Unknown	
999	NIU (not in universe)	

#### Table 12: Mauritius

JMS Code		Aggregate Sect
2	Crop and animal production	Agriculture
2	Forestry and logging	Agriculture
5	Fishing and aquaculture	Agriculture Mining
10	Mining and quarrying Food products	Nondurables
11	Beverages	Nondurables
13	Textiles	Nondurables
14	Wearing apparel	Nondurables
15	Leather products	Nondurables
16	Wood products	Durables
17	Paper products	Nondurables
18	Printing	Nondurables
20	Chemicals	Nondurables
22	Rubber and plastic	Nondurables
23	Non-metallic mineral products	Durables
24	Basic metals	Durables
25	Fabricated metal products	Durables
26	Computer, electronic products	Electronics
27	Electrical equipment	Electronics
28	Machinery	Machinery
29	Motor vehicles	Transportation
30	Other transport equipment	Transportation
31	Furniture	Durables
32	Other manufacturing	Durables
33	Repair and installation	Durables
35	Electricity, gas, steam	Services
36	Water supply	Services
38	Sewerage Wasta management	Services
41	Waste management Building construction	Construction
41	Civil engineering	Construction
43	Specialized construction	Construction
45	Trade and repair of motor vehicles	Services
46	Wholesale trade	Services
47	Retail trade	Services
49	Land transport	Trptservices
50	Water transport	Trptservices
51	Air transport	Trptservices
52	Warehousing	Trptservices
53	Postal and courier activities	Trptservices
55	Accommodation	Services
56	Food and beverage services	Services
58	Publishing activities	ICT
59	Film, video, and TV production	ICT
60	Broadcasting	ICT
61	Telecommunications	ICT
01		IC I
62	Computer programming	ICT
	Information services	
62 63 64		ICT
62 63 64 65	Information services Financial services Insurance	ICT ICT Services Services
62 63 64 65 66	Information services Financial services Insurance Auxiliary financial services	ICT ICT Services Services Services
62 63 64 65 66 68	Information services Financial services Insurance Auxiliary financial services Real estate	ICT ICT Services Services Services Services
62 63 64 65 66 68 69	Information services Financial services Insurance Auxiliary financial services Real estate Legal and accounting	ICT ICT Services Services Services Services ICT
62 63 64 65 66 66 68 69 70	Information services Financial services Insurance Auxiliary financial services Real estate Legal and accounting Head offices and management	ICT ICT Services Services Services Services ICT ICT
62 63 64 65 66 68 69 70 71	Information services Financial services Insurance Auxiliary financial services Real estate Legal and accounting Head offices and management Architectural activities	ICT ICT Services Services Services Services ICT ICT ICT
62 63 64 65 66 68 69 70 71 72	Information services Financial services Insurance Auxiliary financial services Real estate Legal and accounting Head offices and management Architectural activities Scientific R&D	ICT ICT Services Services Services ICT ICT ICT ICT ICT
62         63           64         65           66         68           69         70           71         72           73         73	Information services Financial services Insurance Auxiliary financial services Real estate Legal and accounting Head offices and management Architectural activities Scientific R&D Advertising	ICT ICT Services Services Services ICT ICT ICT ICT ICT ICT ICT
62         63           64         65           66         68           69         70           71         72           73         74	Information services Financial services Insurance Auxiliary financial services Real estate Legal and accounting Head offices and management Architectural activities Scientific R&D Advertising Professional activities	ICT Services Services Services ICT ICT ICT ICT ICT ICT ICT ICT
62         63           64         65           66         68           69         70           71         72           73         73	Information services Financial services Insurance Auxiliary financial services Real estate Legal and accounting Head offices and management Architectural activities Scientific R&D Advertising Professional activities Rental and leasing	ICT ICT Services Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT
62         63           64         65           66         68           69         70           71         72           73         74           77         79	Information services Financial services Insurance Auxiliary financial services Real estate Legal and accounting Head offices and management Architectural activities Scientific R&D Advertising Professional activities Rental and leasing Travel agencies	ICT ICT Services Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
62         63           63         64           65         65           66         68           69         70           71         72           73         74           77         79           80         80	Information services Financial services Insurance Auxiliary financial services Real estate Legal and accounting Head offices and management Architectural activities Scientific R&D Advertising Professional activities Rental and leasing Travel agencies Security services	ICT Services Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
62         63           64         65           66         68           69         70           71         72           73         74           77         79           80         81	Information services Financial services Insurance Auxiliary financial services Real estate Legal and accounting Head offices and management Architectural activities Scientific R&D Advertising Professional activities Rental and leasing Travel agencies Security services Building services	ICT Services Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
62         63           64         65           66         68           69         70           71         72           73         74           77         79           80         81           82         82	Information services Financial services Insurance Auxiliary financial services Real estate Legal and accounting Head offices and management Architectural activities Scientific R&D Advertising Professional activities Rental and leasing Travel agencies Security services Building services	ICT Services Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
62         63           64         65           66         68           69         70           71         72           73         74           77         79           80         81           82         84	Information services Financial services Insurance Auxiliary financial services Real estate Legal and accounting Head offices and management Architectural activities Scientific R&D Advertising Professional activities Rental and leasing Travel agencies Security services Building services Office administration Public administration	ICT Services Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
62         63           64         65           66         68           69         70           71         72           73         74           77         79           80         81           82         84           85	Information services Financial services Insurance Auxiliary financial services Real estate Legal and accounting Head offices and management Architectural activities Scientific R&D Advertising Professional activities Rental and leasing Travel agencies Security services Building services Building services Office administration Public administration	ICT ICT Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
62           63           64           65           66           68           69           70           71           72           73           74           77           79           80           81           82           84           85           86	Information services Financial services Insurance Auxiliary financial services Real estate Legal and accounting Head offices and management Architectural activities Scientific R&D Advertising Professional activities Rental and leasing Travel agencies Security services Building services Office administration Public administration Education Human health	ICT Services Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
62           63           64           65           66           68           69           70           71           72           73           74           77           79           80           81           82           84           85           86           87	Information services Financial services Insurance Auxiliary financial services Real estate Legal and accounting Head offices and management Architectural activities Scientific R&D Advertising Professional activities Rental and leasing Travel agencies Security services Building services Office administration Public administration Education Human health Residential care	ICT Services Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
62           63           64           65           66           69           70           71           72           73           74           77           79           80           81           82           84           85           86           87           88	Information services Financial services Insurance Auxiliary financial services Real estate Legal and accounting Head offices and management Architectural activities Scientific R&D Advertising Professional activities Rental and leasing Travel agencies Security services Building services Building services Office administration Public administration Education Human health Residential care	ICT ICT Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
62           63           64           65           66           68           69           70           71           72           73           74           77           79           80           81           82           84           85           86           87           88           90	Information services Financial services Insurance Auxiliary financial services Real estate Legal and accounting Head offices and management Architectural activities Scientific R&D Advertising Professional activities Rental and leasing Travel agencies Security services Building services Building services Office administration Public administration Fublic administration Human health Residential care Social work Arts and entertainment	ICT ICT Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
62 63 64 65 66 68 69 70 71 72 73 73 74 77 79 80 81 82 88 85 86 85 88 89 90 91	Information services Financial services Insurance Auxiliary financial services Real estate Legal and accounting Head offices and management Architectural activities Scientific R&D Advertising Professional activities Rental and leasing Travel agencies Security services Building services Office administration Public administration Education Human health Residential care Social work Arts and entertainment Libraries and museums	ICT Services Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
62         63           64         65           68         69           70         73           72         73           74         77           79         80           81         82           84         85           86         87           88         90           91         92	Information services Financial services Insurance Auxiliary financial services Real estate Legal and accounting Head offices and management Architectural activities Scientific R&D Advertising Professional activities Rental and leasing Travel agencies Security services Office administration Public administration Education Human health Residential care Social work Arts and entertainment Libraries and museums Gambling and betting	ICT Services Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
62           63           64           65           66           69           70           71           72           73           74           77           79           80           81           82           84           85           86           87           88           90           91           92           93	Information services Financial services Insurance Auxiliary financial services Real estate Legal and accounting Head offices and management Architectural activities Scientific R&D Advertising Professional activities Rental and leasing Travel agencies Security services Building services Office administration Public administration Public administration Human health Residential care Social work Arts and entertainment Libraries and museums Gambling and betting	ICT ICT Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
62           63           64           65           66           68           69           70           71           72           73           74           77           79           80           81           82           84           85           86           90           91           92           93           94	Information services Financial services Insurance Auxiliary financial services Real estate Legal and accounting Head offices and management Architectural activities Scientific R&D Advertising Professional activities Rental and leasing Travel agencies Security services Building services Building services Building services Office administration Public administration Education Human health Residential care Social work Arts and entertainment Libraries and museums Gambling and betting Sports and recreation	ICT ICT Services Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
62           63           64           65           66           68           69           70           71           72           73           74           77           79           80           81           82           84           85           86           90           91           92           93           94	Information services Financial services Insurance Auxiliary financial services Real estate Legal and accounting Head offices and management Architectural activities Scientific R&D Advertising Professional activities Rental and leasing Travel agencies Security services Building services Building services Office administration Public administration Education Human health Residential care Social work Arts and entertainment Libraries and museums Gambling and betting Sports and recreation Membership organizations	ICT Services Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
62 63 64 65 66 68 69 70 71 77 73 73 74 77 73 73 80 81 83 84 85 88 85 88 85 88 87 90 91 92 93 94 95 96	Information services Financial services Insurance Auxiliary financial services Real estate Legal and accounting Head offices and management Architectural activities Scientific R&D Advertising Professional activities Rental and leasing Travel agencies Security services Building services Office administration Public administration Education Human health Residential care Social work Arts and entertainment Libraries and museums Gambling and betting Sports and recreation Membership organizations Repair of household goods Other personal services	ICT Services Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
62           63           64           65           66           68           69           70           73           74           77           79           80           81           82           84           85           86           87           90           91           92           93           94           95           96           97	Information services Financial services Insurance Auxiliary financial services Real estate Legal and accounting Head offices and management Architectural activities Scientific R&D Advertising Professional activities Rental and leasing Travel agencies Security services Building services Office administration Public administration Education Human health Residential care Social work Arts and entertainment Libraries and museums Gambling and betting Sports and recreation Membership organizations Repair of household goods Other personal services	ICT ICT Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
62 63 64 65 66 68 69 70 71 77 73 73 74 77 73 73 80 81 83 84 85 88 85 88 85 88 87 90 91 92 93 94 95 96	Information services Financial services Insurance Auxiliary financial services Real estate Legal and accounting Head offices and management Architectural activities Scientific R&D Advertising Professional activities Rental and leasing Travel agencies Security services Building services Office administration Public administration Education Human health Residential care Social work Arts and entertainment Libraries and museums Gambling and betting Sports and recreation Membership organizations Repair of household goods Other personal services	ICT Services Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT

## Table 13: Malaysia

MS Code	IPUMS Description	Aggregate Secto
11	Growing of crops, market gardening	Agriculture
12	Livestock farming	Agriculture
13	Mixed farming	Agriculture
14	Agri & animal services	Agriculture
15	Hunting, trapping	Agriculture
20	Forestry, logging	Agriculture
50	Fishing & services	Agriculture
101	Coal, lignite, peat mining	Mining
111	Oil and gas extraction	Mining
112	Services for oil, gas	Mining
120	Uranium, thorium ores mining	Mining
132	Non-ferrous metal mining	Mining Mining
141	Stone, sand, clay mining Other mining and quarrying	Mining
151	Meat, fish, fruit processing	Nondurables
151	Dairy products	Nondurables
153	Grain mill products	Nondurables
154	Other food products	Nondurables
155	Beverages	Nondurables
160	Tobacco products	Nondurables
171	Spinning, weaving textiles	Nondurables
172	Other textiles	Nondurables
173	Knitted fabrics	Nondurables
181	Apparel (except fur)	Nondurables
191	Leather, luggage, saddlery	Nondurables
192	Footwear	Nondurables
201	Sawmilling, planing of wood	Durables
202	Wood, cork products	Durables
210	Paper products	Nondurables
221	Publishing	Nondurables
222	Printing services	Nondurables
223	Media reproduction	Nondurables
231	Coke oven products	Nondurables
232	Refined petroleum	Nondurables
241	Basic chemicals	Nondurables
242	Other chemicals	Nondurables
243	Man-made fibers	Nondurables
251	Rubber products	Nondurables
252	Plastic products	Nondurables
261	Glass products	Durables
269	Non-metallic mineral products	Durables
271	Iron, steel manufacturing	Durables
272	Precious, non-ferrous metals	Durables
273	Metal casting	Durables
281	Metal structures	Durables
289 291	Fabricated metal products	Durables
291 292	General machinery	Machinery Machinery
292	Special machinery Domestic appliances	Electronics
300	Office, computing machinery	Electronics
311	Electric motors, generators	Electronics
312	Electric distribution apparatus	Electronics
313	Insulated wire	Electronics
314	Batteries, accumulators	Electronics
315	Electric lamps	Electronics
319	Other electrical	Electronics
321	Electronic components	Electronics
322	TV, radio transmitters	ICT
323	TV, radio receivers	ICT
331	Medical appliances	Electronics
332	Optical instruments	Electronics
333	Watches and clocks	Electronics
341	Motor vehicles	Transportation
342	Motor vehicle bodies	Transportation
343	Motor vehicle parts	Transportation
351	Shipbuilding and repair	Transportation
352	Railway equipment	Transportation
353	Aircraft, spacecraft	Transportation
359	Other transport equipment	Transportation
361	Furniture manufacturing	Durables
369	Miscellaneous manufacturing	Durables
371	Metal recycling	Services
372	Non-metal recycling	Services
401	Electricity, gas, steam supply	Services
402	Gas manufacturing	Services
403	Steam, hot water supply	Services
410	Water purification, distribution	Services
451	Site preparation	Construction
452	Building of complete constructions	Construction
	B (11) ( ) (11)	G:
453	Building installation	Construction

501 MS Code	IPUMS Description	Aggregate Sec
502	Sale of motor vehicles	Services
503	Maintenance, repair of motor vehicles Sale of motor vehicle parts	Services
504	Sale, maintenance, repair of motorcycles	Services
505	Retail sale of automotive fuel	Services
511	Wholesale on a fee or contract basis	Services
512	Wholesale of agricultural raw materials	Services
513	Wholesale of household goods	Services
514	Wholesale of non-agricultural intermediate products	Services
515	Wholesale of machinery	Services
519	Other wholesale	Services
521	Non-specialized retail trade	Services
522	Retail sale of food, beverages	Services
523	Other retail trade of new goods	Services
523	Retail sale of second-hand goods	Services
525	~	
	Retail trade not in stores	Services
526	Repair of personal, household goods	Services
551	Hotels, camping sites	Services
552	Restaurants, bars, canteens	Services
601	Transport via railways	Trptservice
602	Other land transport	Trptservice
611	Sea and coastal water transport	Trptservice
612	Inland water transport	Trptservice
621	Scheduled air transport	Trptservices
622	Non-scheduled air transport	Trptservice
630	Supporting and auxiliary transport activities	Trptservice
641	Post and courier activities	Trptservice
642	Telecommunications	ICT
651	Monetary intermediation	Services
659	Other financial intermediation	Services
660	Insurance and pension funding	Services
671	Activities auxiliary to finance	Services
672	Activities auxiliary to insurance	Services
701	Real estate activities	Services
702	Real estate activities on a fee or contract basis	Services
711	Rental of transport equipment	ICT
712	Rental of other machinery	ICT
712		ICT
	Rental of personal goods	
721 722	Hardware consultancy Software consultancy	ICT ICT
	,	
723 724	Data processing services	ICT ICT
	Data base activities	
725	Maintenance of office equipment	ICT
729	Other computer related activities	ICT
731	Research in natural sciences	ICT
732	Research in social sciences	ICT
741	Legal, accounting services	ICT
742	Architectural, engineering services	ICT
743	Advertising	ICT
749	Other business activities	ICT
751	Administration of the state	Services
752	Provision of services to the community	Services
753	Compulsory social security activities	Services
801	Primary education	Services
802	Secondary education	Services
803	Higher education	Services
809	Adult and other education	Services
851	Human health activities	Services
852	Veterinary activities	Services
853	Social work activities	Services
900	Sewage, refuse disposal	Services
	<u> </u>	Services
911	Activities of business organizations	
912	Activities of trade unions	Services
919	Activities of other organizations	Services
921	Motion picture, radio, TV	ICT
922	News agency activities	ICT
923	Libraries, archives, museums	Services
924	Sporting and recreational activities	Services
930	Other service activities	Services
950	Private households with employed persons	Services
990	Extra-territorial organizations	Services
995	Activities inadequately described	Unknown

## Table 14: Nigeria

1	IPUMS Description	Aggregate Sect
	Crop and animal prod., hunting	Agriculture
2	Forestry and logging	Agriculture
5	Fishing and aquaculture	0
5	Coal and lignite mining Petroleum and gas extraction	Mining Mining
7	Metal ores mining	Mining
8	Other mining	Mining
9	Mining support services	Mining
10	Food products manuf.	Nondurables
11	Beverages manuf.	Nondurables
12	Tobacco products manuf.	Nondurables
13	Textiles manuf.	Nondurables
14	Wearing apparel manuf.	Nondurables
15	Leather products manuf.	Nondurables
16	Wood products manuf.	Durables
17	Paper products manuf.	Nondurables
18	Printing and media reproduction	Nondurables
19	Coke and petroleum products	Nondurables
20	Chemicals manuf.	Nondurables
21	Pharmaceutical products manuf.	Nondurables
22	Rubber and plastics manuf.	Nondurables
23	Non-metallic mineral products manuf.	Durables
24	Basic metals manuf.	Durables
25	Fabricated metal products manuf.	Durables
26	Electronics manuf.	Electronics
27	Electrical equipment manuf.	Electronics
	Machinery and equipment manuf.	Machinery
29 30	Motor vehicles manuf.	Transportation
30	Other transport equipment manuf. Furniture manuf.	Transportation Durables
31	Furniture manuf. Other manufacturing	Durables
32	Repair and installation	Durables
35	Electricity, gas, steam supply	Services
36	Water supply	Services
37	Sewerage services	Services
38	Waste collection	Services
39	Remediation services	Services
41	Building construction	Construction
42	Civil engineering	Construction
43	Specialized construction	Construction
45	Vehicle trade and repair	Services
46	Wholesale trade	Services
47	Retail trade	Services
49	Land transport	Trptservices
50	Water transport	Trptservices
51	Air transport	Trptservices
52	Warehousing	Trptservices
53	Postal and courier services	Trptservices
55 56	Accommodation services	Services
58	Food and beverage services	Services ICT
59	Publishing services Motion picture, TV, and sound recording	ICT
60	Broadcasting activities	ICT
61	Telecommunications	ICT
62	Computer programming	ICT
63	Information services	ICT
64	Financial services	Services
	Insurance and pension funding	
65		Services
	Financial auxiliary services	Services Services
65	Financial auxiliary services Real estate activities	
65 66	,	Services
65 66 68 69 70	Real estate activities	Services Services ICT ICT
65 66 68 69	Real estate activities Legal and accounting Head office activities Architectural and engineering	Services Services ICT
65 66 68 69 70 71 72	Real estate activities Legal and accounting Head office activities Architectural and engineering Scientific R&D	Services Services ICT ICT ICT ICT
65 66 68 69 70 71 72 73	Real estate activities Legal and accounting Head office activities Architectural and engineering Scientific R&D Advertising and market research	Services Services ICT ICT ICT ICT ICT
65 66 68 69 70 71 72 73 74	Real estate activities Legal and accounting Head office activities Architectural and engineering Scientific R&D Advertising and market research Professional services	Services Services ICT ICT ICT ICT ICT ICT
65         66           68         69           70         71           72         73           74         75	Real estate activities Legal and accounting Head office activities Architectural and engineering Scientific R&D Advertising and market research Professional services Veterinary activities	Services Services ICT ICT ICT ICT ICT ICT ICT ICT
65         66           68         69           70         71           72         73           74         75           77         77	Real estate activities Legal and accounting Head office activities Architectural and engineering Scientific R&D Advertising and market research Professional services Veterinary activities Rental and leasing	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT
65         66           68         69           70         71           72         73           74         75           77         78	Real estate activities Legal and accounting Head office activities Architectural and engineering Scientific R&D Advertising and market research Professional services Veterinary activities Rental and leasing Employment activities	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
65         66           68         69           70         71           72         73           74         75           77         78           79         79	Real estate activities Legal and accounting Head office activities Architectural and engineering Scientific R&D Advertising and market research Professional services Veterinary activities Rental and leasing Employment activities Travel agency services	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
65         66           68         69           70         71           72         73           74         75           77         78           79         80	Real estate activities Legal and accounting Head office activities Architectural and engineering Scientific R&D Advertising and market research Professional services Veterinary activities Rental and leasing Employment activities Travel agency services Security services	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
65 66 68 69 70 71 72 73 74 75 77 78 79 80 81	Real estate activities Legal and accounting Head office activities Architectural and engineering Scientific R&D Advertising and market research Professional services Veterinary activities Rental and leasing Employment activities Travel agency services Security services Building and landscape services	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
65         66           68         69           70         71           72         73           74         75           77         78           79         80           81         82	Real estate activities Legal and accounting Head office activities Architectural and engineering Scientific R&D Advertising and market research Professional services Veterinary activities Rental and leasing Employment activities Travel agency services Security services Building and landscape services Office support services	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
65 66 68 69 70 71 72 73 74 75 77 78 79 80 81	Real estate activities Legal and accounting Head office activities Architectural and engineering Scientific R&D Advertising and market research Professional services Veterinary activities Rental and leasing Employment activities Travel agency services Security services Building and landscape services Building and landscape services Public administration and defense	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
65         66           68         69           70         71           72         73           74         75           77         78           79         80           81         82           84         85	Real estate activities Legal and accounting Head office activities Architectural and engineering Scientific R&D Advertising and market research Professional services Veterinary activities Rental and leasing Employment activities Travel agency services Security services Building and landscape services Office support services	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
65         66           68         69           70         71           72         73           74         75           77         78           79         80           81         82           84         84	Real estate activities Legal and accounting Head office activities Architectural and engineering Scientific R&D Advertising and market research Professional services Veterinary activities Rental and leasing Employment activities Travel agency services Security services Building and landscape services Office support services Public administration and defense Education services Human health activities	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
65         66           68         69           70         71           72         73           73         74           75         77           78         79           80         81           82         84           85         86	Real estate activities Legal and accounting Head office activities Architectural and engineering Scientific R&D Advertising and market research Professional services Veterinary activities Rental and leasing Employment activities Travel agency services Security services Building and landscape services Odfice support services Public administration and defense Education services Hurman health activities Residential care activities	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
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65         66           68         69           70         71           72         73           74         75           77         78           79         80           81         82           84         85           86         87           88         87	Real estate activities Legal and accounting Head office activities Architectural and engineering Scientific R&D Advertising and market research Professional services Veterinary activities Rental and leasing Employment activities Travel agency services Building and landscape services Building and landscape services Office support services Public administration and defense Education services Human health activities Residential care activities Social work activities	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
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65           66           68           69           70           71           72           73           74           75           77           78           80           81           85           86           87           88           90           91           92           93	Real estate activities Legal and accounting Head office activities Architectural and engineering Scientific R&D Advertising and market research Professional services Veterinary activities Rental and leasing Employment activities Travel agency services Building and landscape services Building and landscape services Office support services Public administration and defense Education services Human health activities Residential care activities Social work activities Creative and entertainment activities Libraries and museums Gambling and betting Sports and recreation	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT
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65           66           68           69           70           71           72           73           74           75           77           78           80           81           82           84           85           86           90           91           92           93           94           95           96           97	Real estate activities Legal and accounting Head office activities Architectural and engineering Scientific R&D Advertising and market research Professional services Veterinary activities Rental and leasing Employment activities Travel agency services Building and landscape services Office support services Building and landscape services Office support services Public administration and defense Education services Human health activities Residential care activities Social work activities Libraries and museums Cambling and betting Sports and recreation Membership organizations Computer and household goods repair Personal service activities Household employment activities	Services Services ICT ICT ICT ICT ICT ICT ICT ICT ICT ICT

## Table 15: Philippines

0	IPUMS Description NIU (not in universe)	Aggregate Sec
11	Non-perennial crops	Agriculture
12	Perennial crops Animal production	Agriculture Agriculture
15	Support activities to agriculture	Agriculture
19 21	Other crop and animal production Silviculture and forest activities	Agriculture Agriculture
22	Logging	Agriculture
23 24	Gathering of non-wood forest products Support services to forestry	Agriculture Agriculture
31	Fishing	Agriculture
32	Aquaculture	Agriculture
50 61	Hard coal and lignite mining Crude petroleum extraction	Mining Mining
62	Natural gas extraction	Mining
71	Iron ore mining	Mining
81	Non-ferrous metal ores mining Quarrying of stone, sand, and clay	Mining Mining
89	Other mining	Mining
91 99	Support activities for petroleum and gas extraction Support activities for other mining	Mining Mining
101	Meat processing	Nondurable
102 103	Fish processing	Nondurable
103	Fruit and vegetable processing Vegetable and animal oils	Nondurable
105	Dairy products manufacturing	Nondurable
106	Grain mill products Other food products	Nondurable
105	Prepared animal feeds	Nondurable
110	Beverages manufacturing	Nondurable
120	Tobacco products manufacturing Textiles manufacturing	Nondurable
139	Other textiles manufacturing	Nondurable
141	Wearing apparel manufacturing Custom tailoring and dressmaking	Nondurable
142	Knitted and crocheted apparel	Nondurable
151	Tanning and dressing of leather	Nondurable
152	Footwear manufacturing Sawmilling	Nondurables Durables
161	Wood, cork, straw products	Durables
170	Paper and paper products	Nondurable
180 191	Printing and media reproduction Coke and other products	Nondurable
192	Refined petroleum products	Nondurable
199 201	Other fuel products	Nondurable
201 202	Basic chemicals manufacturing Other chemical products	Nondurable Nondurable
210	Pharmaceuticals manufacturing	Nondurable
221	Rubber products manufacturing	Nondurable
231	Plastics products manufacturing Glass products manufacturing	Durables
239	Non-metallic mineral products	Durables
241	Basic iron and steel Precious and other non-ferrous metals	Durables Durables
243	Metal casting	Durables
251	Structural metal products Weapons and ammunition manufacturing	Durables Durables
259	Other fabricated metal products	Durables
261	Electronic components manufacturing	Electronics
262	Computer and peripherals manufacturing Communication equipment manufacturing	Electronics
264	Consumer electronics manufacturing	Electronics
265 266	Measuring and control equipment Electromedical equipment	Electronics
267	Optical and photographic instruments	Electronics
271	Electric motors and transformers	Electronics
272 273	Batteries and accumulators Wiring devices manufacturing	Electronics
274	Electric lighting equipment	Electronics
275 279	Domestic appliances manufacturing	Electronics
2/9 281	Other electric equipment manufacturing General purpose machinery	Electronics Machinery
282	Special purpose machinery	Machinery
291 292	Motor vehicles manufacturing Motor vehicle bodies and trailers	Transportatio
292 293	Motor vehicle bodies and trailers Motor vehicle parts	Transportatio Transportatio
301	Shipbuilding and boatbuilding	Transportatio
303 309	Aircraft manufacturing Other transport equipment	Transportatio Transportatio
310	Furniture manufacturing	Durables
321 322	Jewelry manufacturing Musical instruments manufacturing	Durables Durables
322 323	Sports goods manufacturing	Durables
324	Games and toys manufacturing	Durables
325 329	Medical instruments and supplies Other manufacturing	Durables Durables
331	Metal products repair	Durables
332	Industrial machinery installation	Durables
351 352	Electric power generation Gas distribution	Services
	Steam and air conditioning supply	Services
353		
360	Water supply	Services
360 370 381 382	Water supply Sewerage Waste collection Waste treatment and disposal	Services Services Services Services
360 370 381 382 383	Water supply Sewerage Waste collection Waste treatment and disposal Materials recovery	Services Services Services Services Services
360 370 381 382	Water supply Sewerage Waste collection Waste treatment and disposal	Services Services Services Services Services Services
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360 370 381 382 383 390 410 421 422	Water supply Sewerage Waste collection Waste treatment and disposal Materials recovery Remediation and waste management Building construction Roads and railways construction Utility projects construction	Services Services Services Services Services Construction Construction
360 370 381 382 383 390 410 421	Water supply Severage Waste collection Waste treatment and disposal Materials recovery Remediation and waste management Building construction Roads and railways construction Utility projects construction Other civil engineering projects	Services Services Services Services Services Construction Construction Construction
360           370           381           382           383           390           410           421           422           429           431           432	Water supply Sewerage Waste collection Waste treatment and disposal Materials recovery Remediation and waste management Building construction Roads and railways construction Utility projects construction	Services Services Services Services Services Construction Construction Construction Construction Construction
360           370           381           382           383           390           410           421           422           429           431           432           433	Water supply Sewerage Waste collection Waste treatment and disposal Materials recovery Remediation and waste management Building construction Utility projects construction Utility projects construction Other civil angineering projects Demolition and site preparation Electrical and plumbing installation Building completion and finishing	Services Services Services Services Services Construction Construction Construction Construction Construction Construction Construction
360           370           381           382           383           390           410           421           422           431           432           433           439	Water supply Sewerage Waste collection Waste treatment and disposal Materials recovery Remediation and waste management Building construction Roads and railways construction Utility projects construction Other civil engineering projects Demolition and site preparation Electrical and plumbing installation Building completion and finishing Other specialized construction	Services Services Services Services Services Construction Construction Construction Construction Construction Construction Construction Construction Construction Construction
360           370           381           382           383           390           410           421           422           423           431           432           433           439           451           452	Water supply Sewerage Waste collection Waste treatment and disposal Materials recovery Remediation and waste management Building construction Roads and railways construction Utility projects construction Other civil engineering projects Demolition and site preparation Electrical and plumbing installation Building completion and finishing Other specialized construction Motor vehicle sales Motor vehicle sales	Services Services Services Services Construction Construction Construction Construction Construction Construction Construction Construction Services Services
360           370           381           382           383           390           410           421           422           431           432           433           439           451           452           453	Water supply Sewerage Waste collection Waste treatment and disposal Materials recovery Remediation and waste management Building construction Roads and railways construction Utility projects construction Other civil engineering projects Demolition and site preparation Electrical and plumbing installation Building completion and finishing Other specialized construction Motor vehicle repair Motor vehicle repair	Services Services Services Services Services Services Construction Construction Construction Construction Construction Construction Construction Construction Construction Construction Construction Services Services Services
360           370           381           382           383           390           410           421           422           431           432           433           439           451           452           453           454	Water supply Sewerage Waste collection Waste treatment and disposal Materials recovery Remediation and waste management Building construction Utility projects construction Utility projects construction Other civil angineering projects Demolition and site preparation Electrical and plumbing installation Building completion and finishing Other specialized construction Motor vehicle parts aales Motor vehicle parts aales Motor vehicle parts aales	Services Services Services Services Services Services Construction Construction Construction Construction Construction Construction Construction Construction Services Services Services Services
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360           370           381           382           383           390           410           421           422           431           432           433           451           452           453           454           461	Water supply Sewerage Waste collection Waste treatment and disposal Materials recovery Remediation and waste management Building construction Roads and railways construction Utility projects construction Other civil engineering projects Demolition and site preparation Electrical and plumbing installation Building completion and finishing Other specialized construction Motor vehicle repair Motor vehicle parts ales Motor vehicle parts ales Motor vehicle parts ales Motor vehicle parts ales	Services Services Services Services Services Construction Construction Construction Construction Construction Construction Construction Construction Construction Construction Construction Services Services Services Services Services

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siness support services	ICT
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npulsory social security	Services
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Higher education	Services
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Hospital activities	Services
and dental practice activities r human health activities	Services Services
vursing care facilities	Services
and disabled care activities	Services
alth and substance abuse care residential care activities	Services Services
ork without accommodation	Services
er social work activities reative arts activities	Services
braries and museums	Services
ling and betting activities	
Sports activities Recreation activities	Services
nd professional organizations	Services Services Services
membership organizations	Services Services Services
Repair of computers	Services Services Services Services
Repair of computers ir of consumer electronics	Services Services Services
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ir of consumer electronics Personal services Laundry services	Services Services Services Services Services Services Services Services
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27

## Table 16: Portugal

UMS Code	IPUMS Description	Aggregate Secto
11 12	Growing of non-perennial crops Growing of perennial crops	Agriculture Agriculture
14	Animal production	Agriculture
15	Mixed farming Support activities to agriculture	Agriculture Agriculture
17	Hunting, trapping	Agriculture
21 22	Silviculture Logging	Agriculture Agriculture
23	Gathering of non-wood products	Agriculture
24 31	Support services to forestry Fishing	Agriculture Agriculture
32	Aquaculture	Agriculture
51	Mining of hard coal Extraction of crude petroleum	Mining Mining
72	Mining of non-ferrous ores	Mining
81 89	Quarrying of stone	Mining
101	Mining and quarrying n.e.c. Processing and preserving of meat	Mining Nondurables
102	Processing of fish	Nondurables
103	Processing of fruit and vegetables Manufacture of oils and fats	Nondurables Nondurables
105	Manufacture of dairy products	Nondurables
106 107	Manufacture of grain mill products Manufacture of bakery products	Nondurables Nondurables
107	Manufacture of other food products	Nondurables
109 110	Manufacture of animal feeds	Nondurables
120	Manufacture of beverages Manufacture of tobacco products	Nondurables Nondurables
131	Spinning of textile fibres	Nondurables
132	Weaving of textiles	Nondurables
135	Finishing of textiles Manufacture of other textiles	Nondurables
141	Manufacture of apparel	Nondurables
143 151	Manufacture of knitted apparel Tanning and dressing of leather	Nondurables Nondurables
152	Manufacture of footwear	Nondurables
161 162	Sawmilling Manufacture of wood products	Durables Durables
162	Manufacture of wood products Manufacture of pulp, paper	Nondurables
172	Manufacture of paperboard articles	Nondurables
181	Printing and related activities Reproduction of recorded media	Nondurables Nondurables
192	Manufacture of petroleum products	Nondurables
201	Manufacture of chemicals	Nondurables
203 204	Manufacture of paints Manufacture of soaps, detergents	Nondurables Nondurables
205	Manufacture of other chemicals	Nondurables
206 211	Manufacture of man-made fibres Manufacture of pharmaceuticals	Nondurables Nondurables
211	Manufacture of pharmaceutical preparations	Nondurables
221	Manufacture of rubber products	Nondurables
222 231	Manufacture of plastics products Manufacture of glass products	Nondurables Durables
232	Manufacture of refractory products	Durables
233	Manufacture of clay building materials Manufacture of porcelain and ceramic products	Durables Durables
235	Manufacture of porcelain and cerainic products	Durables
236	Manufacture of concrete products	Durables
237 239	Cutting, shaping stone Manufacture of abrasive products	Durables Durables
241	Manufacture of basic iron and steel	Durables
242	Manufacture of tubes, pipes	Durables Durables
243	Manufacture of first processing of steel products Manufacture of non-ferrous metals	Durables
245	Casting of metals	Durables
251 252	Manufacture of metal products Manufacture of tanks, reservoirs	Durables Durables
254	Manufacture of weapons	Durables
256 257	Treatment and coating of metals Manufacture of cutlery, tools	Durables Durables
259	Manufacture of fabricated metal products	Durables
261 262	Manufacture of electronic components Manufacture of computers	Electronics
263	Manufacture of computers	Electronics
264	Manufacture of consumer electronics	Electronics
265 266	Manufacture of measuring instruments Manufacture of electromedical equipment	Electronics
267	Manufacture of optical instruments	Electronics
271 272	Manufacture of electric motors Manufacture of batteries	Electronics
273	Manufacture of wiring devices	Electronics
274 275	Manufacture of lighting equipment	Electronics
275	Manufacture of domestic appliances Manufacture of other electrical equipment	Electronics
281	Manufacture of general-purpose machinery	Machinery
282 283	Manufacture of other machinery Manufacture of agricultural machinery	Machinery Machinery
289	Manufacture of special-purpose machinery	Machinery
291 292	Manufacture of motor vehicles Manufacture of motor vehicle bodies	Transportation
292 293	Manufacture of motor vehicle bodies	Transportation Transportation
301	Building of ships and boats	Transportation
303 309	Manufacture of aircraft and spacecraft Manufacture of transport equipment n.e.c.	Transportation Transportation
310	Manufacture of furniture	Durables
321 323	Manufacture of jewellery Manufacture of sports goods	Durables Durables
324	Manufacture of games and toys	Durables
325 329	Manufacture of medical instruments	Durables
	Other manufacturing Repair of metal products	Durables Durables
331		Durables
331 332	Installation of machinery	
331 332 351	Electric power generation	Services
331 332		
331 332 351 352 360 370	Electric power generation Manufacture of gas Water collection and supply Sewerage	Services Services Services Services
331 332 351 352 360 370 381	Electric power generation Manufacture of gas Water collection and supply Sewerage Waste collection	Services Services Services Services Services
331 332 351 352 360 370	Electric power generation Manufacture of gas Water collection and supply Sewerage	Services Services Services Services
331 332 351 352 360 370 381 382 383 411	Electric power generation Manufacture of gas Water collection and supply Sewerage Waste collection Waste treatment Materials recovery Building project development	Services Services Services Services Services Services
331 332 351 352 360 370 381 382 383 411 412	Electric power generation Manufacture of gas Water collection and supply Severage Waste collection Waste treatment Materials recovery Building project development Construction of buildings	Services Services Services Services Services Services Construction Construction
331 332 351 352 360 370 381 382 383 411	Electric power generation Manufacture of gas Water collection and supply Sewerage Waste collection Waste treatment Materials recovery Building project development Construction of buildings Construction of buildings	Services Services Services Services Services Services Construction Construction
331           332           351           352           360           370           381           382           383           411           412           421           422           429	Electric power generation Manufacture of gas Water collection and supply Severage Waste collection Waste treatment Materials recovery Building project development Construction of buildings Construction of buildings Construction of utility projects Other civil engineering projects	Services Services Services Services Services Construction Construction Construction Construction
331           332           351           352           360           370           381           382           383           411           412           421           422           429           431	Electric power generation Manufacture of gas Water collection and supply Severage Waste collection Waste treatment Materials recovery Building project development Construction of buildings Construction of buildings Construction of buildings Other civil engineering projects Demolition and site preparation	Services Services Services Services Services Construction Construction Construction Construction Construction
331           332           351           352           360           370           381           382           383           411           412           421           422           429	Electric power generation Manufacture of gas Water collection and supply Severage Waste collection Waste treatment Materials recovery Building project development Construction of buildings Construction of buildings Construction of utility projects Other civil engineering projects	Services Services Services Services Services Construction Construction Construction Construction
331           332           351           352           360           370           381           382           383           411           412           421           422           429           431           432	Electric power generation Manufacture of gas Water collection and supply Severage Waste collection Waste treatment Materials recovery Building project development Construction of buildings Construction of buildings Construction of buildings Construction of buildings Construction of buildings Construction of buildings Construction of utility projects Other civil engineering projects Demolition and site preparation Electrical and plumbing installation	Services Services Services Services Services Services Construction Construction Construction Construction Construction Construction

453	Sale of motor vehicle parts	Services
454 461	Sale of motorcycles Wholesale on a fee or contract basis	Services
462	Wholesale of agricultural materials	Services
463 464	Wholesale of food and beverages Wholesale of household goods	Services Services
465	Wholesale of communication equipment	Services
466 467	Wholesale of machinery and equipment Other specialised wholesale	Services Services
469	Non-specialised wholesale trade	Services
471	Retail sale in non-specialised stores	Services
472 473	Retail sale of food and beverages Retail sale of automotive fuel	Services
474	Retail sale of communication equipment	Services
475 476	Retail sale of household equipment Retail sale of cultural and recreation goods	Services
477	Retail sale of other goods	Services
478	Retail sale via stalls and markets	Services
479 491	Retail trade not in stores Passenger rail transport	Services Trptservices
493	Other passenger land transport	Trptservices
494 501	Freight transport by road Sea and coastal passenger transport	Trptservices Trptservices
502	Sea and coastal freight transport	Trptservices
503 511	Inland passenger transport Passenger air transport	Trptservices Trptservices
521	Warehousing and storage	Trptservices
522	Support activities for transportation	Trptservices
531 532	Postal activities Other postal and courier activities	Trptservices Trptservices
551	Hotels and similar accommodation	Services
552 553	Holiday accommodation Camping grounds	Services
559	Other accommodation	Services
561	Restaurants	Services
562 563	Event catering Beverage serving activities	Services
581	Publishing of books	ICT
591 601	Motion picture and television production Radio broadcasting	ICT
602	Television programming	ICT
611 612	Wired telecommunications Wireless telecommunications	ICT ICT
612	Other telecommunications activities	ICT
620	Computer programming	ICT
631 639	Data processing and web portals Other information services	ICT
641	Monetary intermediation	Services
642 643	Holding companies Trusts, funds	Services
649	Other financial service activities	Services
651	Insurance	Services
661 662	Activities auxiliary to financial services Activities auxiliary to insurance	Services
663	Fund management activities	Services
681 682	Buying and selling of own real estate Rental and operating of real estate	Services
683	Real estate on a fee basis	Services
691 692	Legal activities	ICT
702	Accounting and auditing Management consultancy	ICT
711	Architectural activities	ICT
712 721	Technical testing and analysis Research in natural sciences	ICT ICT
731	Advertising	ICT
732 741	Market research Specialised design activities	ICT
742	Photographic activities	ICT
743 749	Translation activities Other professional activities	ICT ICT
749	Veterinary activities	ICT
771	Rental of motor vehicles	ICT
772 773	Rental of personal goods Rental of machinery	ICT ICT
781	Employment placement agencies	ICT
782 783	Temporary employment agency Other human resources provision	ICT ICT
783	Travel agency activities	ICT
801	Private security activities	ICT
802 812	Security systems services Cleaning activities	ICT
813	Landscape services	ICT
821 822	Office support activities	ICT ICT
822 823	Call centres Conventions and trade shows	ICT
829 841	Business support services n.e.c.	ICT
841 842	State administration Provision of community services	Services Services
843	Compulsory social security	Services
851 852	Pre-primary education Primary education	Services Services
852 853	Primary education Secondary education	Services
854	Higher education	Services
855 861	Other education Hospital activities	Services
862	Medical and dental practice	Services
869 871	Other human health activities	Services Services
8/1 872	Nursing care facilities Mental care facilities	Services
873	Elderly and disabled care facilities	Services
879 881	Other residential care activities	Services
881 889	Social work for elderly Other social work activities	Services
900	Arts and entertainment activities	Services
910 920	Libraries and museums Gambling and betting activities	Services
931	Gambling and betting activities Sports activities	Services
932	Recreation activities	Services
941 942	Business organisations Trade unions	Services
949	Other membership organisations	Services
951	Repair of computers	Services
952 960	Repair of household goods Other personal service activities	Services

28

## Table 17: Senegal

IPLIME C: 1	IPI IMC December 11-	Aggregals C 1-
11 11	IPUMS Description Non-perennial crops	Aggregate Sector Agriculture
12	Perennial crops	Agriculture
13	Plant propagation	Agriculture
14	Animal production	Agriculture
15	Mixed farming	Agriculture
16	Agricultural support	Agriculture
17	Hunting	Agriculture
21	Silviculture	Agriculture
22	Logging	Agriculture Agriculture
23	Non-wood forest products Forestry support	Agriculture
31	Fishing	Agriculture
32	Aquaculture	Agriculture
50	Coal and lignite mining	Mining
60	Crude petroleum and gas extraction	Mining
71	Iron ore mining	Mining
72	Non-ferrous metal ores	Mining
81	Stone, sand, and clay quarrying	Mining
89	Other mining and quarrying	Mining
91	Petroleum and gas extraction support	Mining
99	Other mining support	Mining
101 102	Meat processing Fish processing	Nondurables Nondurables
102	Fruit and vegetable processing	Nondurables
103	Vegetable and animal oils	Nondurables
104	Dairy products	Nondurables
105	Grain mill products	Nondurables
107	Other food products	Nondurables
108	Animal feeds	Nondurables
110	Beverages	Nondurables
120	Tobacco products	Nondurables
131	Textile spinning and weaving	Nondurables
139	Other textiles	Nondurables
141	Apparel manufacturing	Nondurables
149	Other apparel manufacturing	Nondurables
151	Leather and fur processing	Nondurables Nondurables
152	Footwear manufacturing	Durables
161	Sawmilling and planing Wood and cork products	Durables
170	Paper products	Nondurables
181	Printing services	Nondurables
182	Recorded media reproduction	Nondurables
190	Petroleum products manufacturing	Nondurables
201	Basic chemicals manufacturing	Nondurables
202	Other chemical products	Nondurables
210	Pharmaceuticals manufacturing	Nondurables
221	Rubber products	Nondurables
222	Plastics products	Nondurables
230	Non-metallic mineral products	Durables
242	Iron, steel, and non-ferrous metals	Durables
243 251	Metal casting	Durables Durables
251	Structural metal products Fabricated metal products	Durables
261	Electronic components	Electronics
263	Communication equipment	Electronics
264	Consumer electronics	Electronics
265	Measuring and control equipment	Electronics
269	Other electronic products	Electronics
271	Electric motors and generators	Electronics
272	Batteries and accumulators	Electronics
273	Wiring and wiring devices	Electronics
274	Electric lighting equipment	Electronics
275	Domestic appliances	Electronics
279	Other electrical equipment	Electronics
281	General-purpose machinery	Machinery
282	Special-purpose machinery Motor vehicles manufacturing	Machinery Transportation
291	Motor vehicle bodies and trailers	Transportation
292	Motor vehicle parts	Transportation
301	Ship and boat building	Transportation
309	Other transport equipment	Transportation
310	Furniture manufacturing	Durables
321	Jewellery and related articles	Durables
329	Other manufacturing n.e.c.	Durables
331	Repair of fabricated metal products	Durables
332	Installation of industrial machinery	Durables
351	Electric power generation	Services
359	Gas and air conditioning supply	Services
360	Water supply and sewerage	Services
380	Waste collection and treatment	Services
390	Remediation services	Services
410 421	Building construction Road and railway construction	Construction
421 429	Road and railway construction Civil engineering projects	Construction
429	Specialized construction activities	Construction
430	Demolition and site preparation	Construction
431	Electrical and plumbing installation	Construction
432	Other specialized construction	Construction
451	Motor vehicle sales	Services
452	Motor vehicle repair	Services
453	Motor vehicle parts sales	Services
454	Motorcycle sales and repair	Services
	Wholesale on a fee basis	Services
461		
461 462	Agricultural raw materials wholesale	Services
	Agricultural raw materials wholesale Food and beverage wholesale	Services Services

IPUMS Code	IPUMS Description	Aggregate Sector
465	Machinery and equipment wholesale	Services
466	Specialized wholesale Non-specialized wholesale	Services
469 471	Retail in non-specialized stores	Services
471 472	Food and tobacco retail	Services
473	Automotive fuel retail	Services
474	Information equipment retail	Services
475	Household equipment retail	Services
476	Cultural goods retail	Services
477	Other goods retail	Services
478	Retail via stalls and markets	Services
479	Retail not in stores	Services
491	Railway transport	Trptservices
492	Land transport	Trptservices
493	Pipeline transport	Trptservices
501	Sea passenger transport	Trptservices
502	Inland water transport	Trptservices
510	Air transport	Trptservices
520	Warehousing	Trptservices
531	Postal services	Trptservices
532	Courier activities	Trptservices
550	Accommodation services	Services
561	Restaurant services	Services
562	Event catering	
563 580	Beverage services Publishing activities	Services ICT
580	Publishing activities Motion picture activities	ICT
591	Sound recording activities	ICT
600	Broadcasting activities	ICT
611	Wired telecommunications	ICT
612	Wireless telecommunications	ICT
619	Other telecommunications	ICT
620	Computer programming	ICT
639	Other information services	ICT
641	Monetary intermediation	Services
642	Holding companies	Services
649	Other financial services	Services
650	Insurance services	Services
661	Financial service support	Services
662	Insurance and pension support	Services
669	Other financial support services	Services
681	Real estate with own property	Services
682	Real estate on fee basis	Services
690	Legal and accounting activities	ICT
700	Head office activities	ICT
711 719	Architectural and engineering activities	ICT
713	Technical testing Natural sciences R&D	ICT
721	Social sciences R&D	ICT
730	Advertising and market research	ICT
741	Specialized design activities	ICT
742	Photographic activities	ICT
749	Other professional activities	ICT
770	Rental and leasing activities	ICT
780	Employment activities	ICT
791	Travel agency activities	ICT
799	Other reservation services	ICT
801	Private security activities	ICT
809	Security and investigation services	ICT
811	Facility support services	ICT
812	Cleaning activities	ICT
819	Building and landscape services	ICT
821	Office administration	ICT
829	Business support activities	ICT
841	State administration	Services
842	Community services	Services
843 851	Social security activities	Services Services
851	Pre-primary and primary education Secondary education	Services
852	Higher education	Services
853	Other education	Services
855	Educational support activities	Services
861	Hospital activities	Services
862	Medical and dental practice	Services
869	Other human health activities	Services
871	Nursing care facilities	Services
872	Residential care for mental health	Services
873	Residential care for the elderly	Services
879	Other residential care activities	Services
015	Social work for the elderly	Services
881		
	Other social work activities	Services
881		
881 889	Other social work activities	Services
881 889 900	Other social work activities Creative, arts and entertainment activities	Services Services
881 889 900 910	Other social work activities Creative, arts and entertainment activities Cultural activities	Services Services Services
881 889 900 910 931	Other social work activities Creative, arts and entertainment activities Cultural activities Sports activities	Services Services Services Services
881 889 900 910 931 932	Other social work activities Creative, arts and entertainment activities Cultural activities Sports activities Amusement and recreation activities	Services Services Services Services Services
881 889 900 910 931 932 941	Other social work activities Creative, arts and entertainment activities Cultural activities Sports activities Amusement and recreation activities Business and professional organizations	Services Services Services Services Services Services
881 889 900 910 931 932 941 949	Other social work activities Creative, arts and entertainment activities Cultural activities Sports activities Amusement and recreation activities Business and professional organizations Other membership organizations	Services Services Services Services Services Services Services
881 889 900 910 931 932 941 949 951 952 960	Other social work activities Creative, arts and entertainment activities Cultural activities Sports activities Amusement and recreation activities Business and professional organizations Other membership organizations Computer and communication repair Personal and household goods repair Other personal services	Services Services Services Services Services Services Services Services Services
881 889 900 910 931 932 941 949 951 952 960 970	Other social work activities Creative, arts and entertainment activities Cultural activities Sports activities Amusement and recreation activities Business and professional organizations Other membership organizations Computer and communication repair Personal are household goods repair Other personal services Domestic personnel employment	Services Services Services Services Services Services Services Services Services Services
881 889 900 910 931 932 941 949 951 955 960 970 980	Other social work activities Creative, arts and entertainment activities Cultural activities Sports activities Amusement and recreation activities Business and professional organizations Other membership organizations Computer and communication repair Personal and household goods repair Other personal services Domestic personnal employment Activities of private households	Services Services Services Services Services Services Services Services Services Services Services Services
881 889 900 910 931 932 941 949 951 952 960 970	Other social work activities Creative, arts and entertainment activities Cultural activities Sports activities Amusement and recreation activities Business and professional organizations Other membership organizations Computer and communication repair Personal are household goods repair Other personal services Domestic personnel employment	Services Services Services Services Services Services Services Services Services Services

29 -

## Table 18: Thailand

11	Crop farming	Agriculture	IBUMC C. 1	IDUME D ' '	A
12	Animal farming	Agriculture	IPUMS Code	IPUMS Description	Aggregate Se
13	Mixed farming	Agriculture	453	Building installation	Constructio
14	Agri & animal services	Agriculture	454	Building completion	Constructio
15	Hunting & trapping	Agriculture	455	Renting construction equipment	Constructio
20	Forestry & logging	Agriculture	501	Motor vehicle sales	Transportati
50	Fishing & aquaculture	Agriculture	502	Motor vehicle repair	Transportati
101	Coal mining	Mining	503	Motor vehicle parts & accessories	Transportati
111	Oil & gas extraction	Mining	504	Motorcycle sales & repair	Transportati
112	Oil & gas services	Mining	505	Automotive fuel retail	Transportati
132	Nonferrous metal mining	Mining	511	Wholesale trade	Services
141	Stone & clay quarrying	Mining	512	Agricultural wholesale	Services
141	Other mining & quarrying		513	Household goods wholesale	Services
142	0 1 7 0	Mining Nondurables	514	Nonagricultural wholesale	Services
	Meat & fish processing		515	Machinery wholesale	Machiner
152	Dairy products	Nondurables	519	Other wholesale	Services
153	Grain & starch products	Nondurables	521	General retail trade	Services
154	Other food products	Nondurables	522	Food & beverage retail	Services
155	Beverages	Nondurables	523	Specialized retail	Services
159	Undocumented	Nondurables	524	Secondhand retail	Services
160	Tobacco products	Nondurables	525	Nonstore retail trade	Services
171	Textile manufacturing	Nondurables	526	Household goods repair	Services
172	Other textiles	Nondurables	529	Undocumented	Services
173	Knitted fabrics	Nondurables	551	Hotels & accommodation	Services
181	Apparel manufacturing	Nondurables			
182	Fur & leather products	Nondurables	552	Restaurants & bars	Services
191	Leather & luggage	Nondurables	601	Rail transport	Trptservice
192	Footwear manufacturing	Nondurables	602	Land transport	Trptservice
201	Sawmilling & wood products	Durables	603	Pipeline transport	Trptservice
202	Wood products	Durables	611	Sea & coastal transport	Trptservice
210	Paper products	Nondurables	612	Inland water transport	Trptservice
221	Publishing	Nondurables	621	Air transport	Trptservice
222	Printing & services	Nondurables	622	Nonscheduled air transport	Trptservice
223	Recorded media	Nondurables	630	Auxiliary transport services	Trptservice
231	Coke products	Nondurables	641	Post & courier services	Trptservice
232	Refined petroleum	Nondurables	642	Telecommunications	ICT
241	Basic chemicals	Nondurables	651	Monetary services	Services
241	Other chemicals	Nondurables	659	Financial intermediation	Services
242	Manmade fibers	Nondurables	660	Insurance & pension services	Services
243		Nondurables	671	Auxiliary financial services	Services
	Rubber products		672	Auxiliary insurance services	Services
252	Plastics products	Nondurables	701	Real estate activities	Services
261	Glass products	Durables	702	Contracted real estate services	Services
269	Nonmetallic mineral products	Durables	711	Renting transport equipment	ICT
271	Iron & steel manufacturing	Durables	712	Renting machinery & equipment	ICT
272	Precious & nonferrous metals	Durables	713	Renting household goods	ICT
273	Metal casting	Durables	721	Hardware consultancy	ICT
281	Structural metal products	Durables	722	Software consultancy & supply	ICT
289	Fabricated metal products	Durables	723	Data processing	ICT
291	General machinery	Machinery	724	Database services	ICT
292	Special machinery	Machinery	725	Office machinery repair	ICT
293	Domestic appliances	Electronics	729	Other computer-related services	ICT
300	Office & computing machinery	Electronics	731	Natural sciences R&D	ICT
311	Electric motors	Electronics		Social sciences R&D	
312	Electricity distribution	Electronics	732		ICT
313	Insulated wire & cable	Electronics	741	Legal & accounting services	ICT
314	Batteries & accumulators	Electronics	742	Architectural & engineering services	ICT
315	Electric lamps & lighting	Electronics	743	Advertising	ICT
319	Other electrical equipment	Electronics	749	Business services n.e.c.	ICT
321	Electronic components	Electronics	751	Public administration	Services
322	Telecommunications equipment	Electronics	752	Community services	Services
323	Audio & video equipment	Electronics	753	Social security services	Services
331	Medical appliances & instruments	Electronics	801	Primary education	Services
332	Optical instruments	Electronics	802	Secondary education	Services
333	Watches & clocks	Electronics	803	Higher education	Services
341	Motor vehicles	Transportation	809	Adult education	Services
341	Motor vehicle bodies & trailers		851	Health services	Services
		Transportation	852	Veterinary services	Services
343	Motor vehicle parts & accessories	Transportation	853	Social work services	Services
351	Shipbuilding & repairing	Transportation	900	Waste management	Services
352	Railway & tramway equipment	Transportation	911	Business & professional organizations	Services
353	Aircraft & spacecraft	Transportation	912	Trade unions	Services
359	Other transport equipment	Transportation	919	Other membership organizations	Services
361	Furniture manufacturing	Durables	921	Entertainment services	ICT
369	Other manufacturing	Durables	921		ICT
371	Metal waste recycling	Services		News agencies	
372	Nonmetal waste recycling	Services	923	Cultural activities	Services
399	Undocumented		924	Recreational activities	Services
	Electricity production	Services	930	Other services	Services
401	/ 1		950	Private households	Services
401 402	Gas manufacturing	Services			
402	Gas manufacturing Water distribution	Services	990	Extraterritorial organizations	Services
	Gas manufacturing Water distribution Site preparation	Services Services Construction	990 998	Extraterritorial organizations Unknown	Servic

#### Table 19: Vietnam





31

## Table 20: South Africa

10	Private households with employees	Services			
20	Extraterritorial organizations	Services	IPUMS Code	IPUMS Description	Aggregate Se
30	Representatives of foreign governments	Services	375	Optical instruments manufacturing	Electronics
111	Grain and staple farming	Agriculture	376	Watches and clocks manufacturing	Electronics
112	Vegetable farming	Agriculture	381	Motor vehicles manufacturing	Transportati
113	Nursery farming	Agriculture	382	Motor vehicles bodies manufacturing	Transportati
114	Fruit farming	Agriculture	383	Motor vehicles parts manufacturing	Transportati
115	Vineyards	Agriculture	384	Ship and boat building and repair	Transportati
116	Sugar cane farming	Agriculture	385	Railway locomotives manufacturing	Transportati
117	Cotton farming	Agriculture	386	Aircraft and spacecraft manufacturing	Transportati
118	Other crop farming	Agriculture	387	Other transport equipment manufacturing n.e.c.	Transportati
121	Cattle farming	Agriculture	391	Furniture manufacturing; recycling n.e.c.	Durables
122	Chicken farming	Agriculture	392	Furniture manufacturing	Durables
123	Horse farming	Agriculture	395	Recycling n.e.c.	Services
124	Dairy farming	Agriculture	411	Electricity production and distribution	Services
125	Sheep farming	Agriculture	412	Gas production and distribution	Services
126	Ostrich farming	Agriculture	413	Steam and hot water supply	Services
127	Goat farming	Agriculture	420	Water collection and distribution	Services
128	Unspecified animal farming	Agriculture	501	Site preparation	Constructio
129	Other animal farming	Agriculture	502	Building construction	Constructio
130	Fertilizer manufacturing	Agriculture	503	Building installation	Constructio
141	Forestry	Agriculture	504	Building completion	Constructio
142	Logging	Agriculture	505	Renting of construction equipment	Constructio
151	Ocean fishing	Agriculture	611	Wholesale trade on a fee or contract basis	Services
151	Inland fishing	Agriculture	612	Wholesale trade in agricultural products	Services
152	Fish farms	Agriculture	613	Wholesale trade in household goods	Services
155	Mixed farming	Agriculture	614	Wholesale trade in intermediate products	Services
160	~	~	615	Wholesale trade in machinery	Services
171	Animal boarding without health care Pest control	Agriculture	619	Other wholesale trade	Services
172		Agriculture Agriculture	621	Retail trade in stores	Services
173	Clearing land for agriculture		622	Retail trade in food, beverages, and tobacco	Services
174	Providing agricultural machinery and crew	Agriculture	623	Retail trade in specialized stores	Services
	Harvesting crops	Agriculture	624	Retail trade in second-hand goods	Services
176	Landscaping and gardening	Agriculture	625	Retail trade not in stores	Services
177	Herd testing and insemination	Agriculture	626	Repair of personal and household goods	Services
178	Other agricultural services	Agriculture	631	Motor vehicles sales	Services
181	Game farming	Agriculture	632	Motor vehicles repair	Services
182	Hunting	Agriculture	633	Motor vehicle parts sales	Services
183	Game breeding	Agriculture	634	Motorcycles and related parts sales	Services
190	Unspecified farming	Agriculture	635	Automotive fuel retail sales	Services
210	Mining of coal and lignite	Mining	641	Hotels and short-stay accommodation	Services
221	Extraction of crude petroleum	Mining	642	Restaurants, bars, and canteens	Services
230	Mining of gold and uranium ore	Mining	643	Shebeen bars	Services
240	Mining of iron ore	Mining	711	Railway transport	Trptservice
241	Mining of non-ferrous metal ores	Mining	712	Other land transport	Trptservio
251	Stone quarrying	Mining	713	Pipeline transport	Trptservio
252	Mining of diamonds	Mining	721	Sea and coastal transport	Trptservice
253	Mining and quarrying n.e.c.	Mining	722	Inland water transport	Trptservio
290	Services incidental to mining	Mining	730	Air transport	Trptservice
301	Meat, fish, fruit, and oil processing	Nondurables	741	Transport support activities	Trptservice
302	Dairy products manufacturing	Nondurables	751	Postal and courier activities	Trptservice
303	Grain mill and animal feeds manufacturing	Nondurables	752	Telecommunications	ICT
304	Other food products manufacturing	Nondurables	811	Monetary intermediation	Services
305	Beverage manufacturing	Nondurables	818	Cash loans	Services
306	Tobacco products manufacturing	Nondurables	819	Other financial intermediation n.e.c.	Services
311	Textile spinning, weaving, and finishing	Nondurables	821	Insurance and pension funding	Services
312	Other textile manufacturing	Nondurables	831	Activities auxiliary to financial intermediation	Services
313	Knitted fabrics manufacturing	Nondurables	832	Activities auxiliary to insurance	Services
314	Apparel manufacturing	Nondurables	841	Real estate with own or leased property	Services
315	Fur dressing and dyeing	Nondurables	842	Real estate on a fee or contract basis	Services
316	Leather and luggage manufacturing	Nondurables	851	Renting of transport equipment	ICT
317	Footwear manufacturing	Nondurables	852	<u> </u>	
321	Sawmilling	Durables		Renting of other machinery Renting of personal and household goods	ICT
322	Wood, cork, and straw products manufacturing	Durables	853		ICT
323	Paper products manufacturing	Nondurables	861	Hardware consultancy	ICT
324	Publishing	Nondurables	862	Software consultancy	ICT
325	Printing and related activities	Nondurables	863	Data processing	ICT
326	Recorded media reproduction	Nondurables	864	Data base activities	ICT
331	Coke oven products manufacturing	Nondurables	869	Other computer related activities	ICT
332	Petroleum refining	Nondurables	871	Research in natural sciences and engineering	ICT
333	Nuclear fuel processing	Nondurables	881	Legal, accounting, and auditing activities	ICT
334	Basic chemicals manufacturing	Nondurables	882	Architectural and engineering activities	ICT
335	Other chemical products manufacturing	Nondurables	883	Advertising	ICT
337	Rubber products manufacturing	Nondurables	889	Business activities n.e.c.	ICT
338	Plastics products manufacturing	Nondurables	911	Central government activities	Services
341	Glass products manufacturing	Durables	912	Regional council activities	Services
342	Non-metallic mineral products manufacturing	Durables	913	Local authority activities	Services
351	Basic iron and steel manufacturing	Durables	914	Provincial administrations	Services
352	Precious metals manufacturing	Durables	915	Armed forces	Services
353	Metal casting	Durables	916	Police	Services
354	Structural metal products manufacturing	Durables	917	Correctional services	Services
355	Fabricated metal products manufacturing	Durables	920	Educational services	Services
356	General purpose machinery manufacturing	Machinery	931	Human health activities	Services
357	Special purpose machinery manufacturing	Machinery	932	Veterinary activities	Services
357		Electronics	933	Social work activities	Services
	Household appliances manufacturing		940	Sewage and refuse disposal	Services
359	Office machinery manufacturing	Electronics	951	Business, employers' organizations	Services
361	Electric motors and generators manufacturing	Electronics	952	Trade unions activities	Services
362	Electricity distribution apparatus manufacturing	Electronics	959	Other membership organizations	Services
363	Insulated wire and cable manufacturing	Electronics	961	Motion picture, radio, and television	ICT
364	Accumulators and batteries manufacturing	Electronics	962	News agency activities	ICT
365	Electric lamps and lighting equipment manufacturing	Electronics	963	Library, archives, and museums	Services
366	Other electrical equipment manufacturing n.e.c.	Electronics	964	Sporting and recreational activities	Services
371	Electronic components manufacturing	Electronics	990	Other service activities	Services
372	Radio and television transmitters manufacturing	Electronics	995	Other activities not specified	Services
373	Radio and television receivers manufacturing	Electronics			

## Table 21: Zambia

11	e IPUMS Description Growing of non-perennial crops	Aggregate Sect Agriculture
12	Growing of perennial crops	Agriculture
13	Plant propagation	Agriculture
14	Animal production Mixed farming	Agriculture Agriculture
16	Support activities to agriculture	Agriculture
17	Hunting, trapping, related	Agriculture
21	Silviculture, forestry activities	Agriculture
22	Logging	Agriculture
23	Gathering non-wood forest products Support services to forestry	Agriculture Agriculture
31	Fishing	Agriculture
32	Aquaculture	Agriculture
51 61	Mining of hard coal Extraction of crude petroleum	Mining
62	Extraction of crude petroleum Extraction of natural gas	Mining Mining
71	Mining of iron ores	Mining
72	Mining of non-ferrous metals	Mining
81	Quarrying stone, sand, clay	Mining
89 91	Mining, quarrying n.e.c. Support activities for petroleum	Mining Mining
99	Support activities, mining n.e.c.	Mining
101	Processing & preserving of meat	Nondurables
102	Processing of fish, crustaceans	Nondurables
103 104	Processing of fruits, vegetables Manufacture of oils & fats	Nondurables
104	Manufacture of dairy products	Nondurables
106	Manufacture of grain mill products	Nondurables
107	Manufacture of other food products	Nondurables
108	Manufacture of animal feeds	Nondurables
110	Manufacture of beverages	Nondurables
120	Manufacture of tobacco products Spinning, weaving, finishing textiles	Nondurables
131	Manufacture of other textiles	Nondurables
140	Manufacturing of wearing apparel	Nondurables
143	Manufacture of knitted apparel	Nondurables
151	Tanning and dressing of leather Manufacture of footwear	Nondurables
152	Manufacture of footwear Sawmilling, planning of wood	Durables
162	Manufacture of products of wood	Durables
170	Manufacture of paper products	Nondurables
180	Printing, reproduction of media	Nondurables
190 201	Manufacture of coke & petroleum Manufacture of basic chemicals	Nondurables
201	Manufacture of other chemicals	Nondurables
209	Manufacture of chemical products n.e.c.	Nondurables
210	Manufacture of pharmaceuticals	Nondurables
221 222	Manufacture of rubber products Manufacture of plastic products	Nondurables Nondurables
231	Manufacture of plass products	Durables
239	Manufacture of non-metallic products n.e.c.	Durables
241	Manufacture of iron and steel	Durables
249 243	Manufacture of basic metals n.e.c.	Durables Durables
245	Casting of metals Manufacture of metal products	Durables
252	Manufacture of weapons & ammunition	Durables
259	Manufacture of other metal products	Durables
260 271	Manufacture of electronics & opticals Manufacture of electric motors	Electronics
273	Manufacture of wiring devices	Electronics
274	Manufacture of lighting equipment	Electronics
275	Manufacture of domestic appliances	Electronics
279 280	Manufacture of other electrical equipment Manufacture of machinery	Electronics Machinery
200	Manufacture of motor vehicles	Transportation
293	Manufacture of vehicle parts	Transportation
300	Manufacture of transport equipment	Transportation
310 321	Manufacture of furniture Manufacture of jewellery & articles	Durables Durables
329	Other manufacturing n.e.c.	Durables
331	Repair of metal products	Durables
332	Installation of machinery	Durables
351	Electric power generation	Services
352	Manufacture & distribution of gas	Services
353 360	Steam & air conditioning supply Water collection & supply	Services
370	Sewerage	Services
381	Waste collection	Services
382	Waste treatment & disposal	Services
389 390	Waste recovery activities n.e.c. Remediation & waste management	Services Services
410	Construction of buildings	Construction
421	Construction of roads & railways	Construction
422	Construction of utility projects	Construction
429	Other civil engineering projects	Construction
431 432	Demolition & site preparation Electrical plumbing installation	Construction
432	Electrical, plumbing installation Building completion & finishing	Construction Construction
439	Other specialized construction	Construction
451	Sale of motor vehicles	Services
452	Maintenance of motor vehicles	Services
453 454	Sale of vehicle parts	Services
454 461	Sale & repair of motorcycles Wholesale on a fee basis	Services
461	Wholesale of a gricultural materials	Services
463	Wholesale of food & tobacco	Services
464	Wholesale of household goods	Services
465	Wholesale of machinery & equipment	Services
466	Other specialized wholesale	Services
469 471	Non-specialized wholesale trade Retail sale in non-specialized stores	Services
471	Retail sale in non-specialized stores Retail sale of food & tobacco	Services
473	Retail sale of nood & tobacco Retail sale of automotive fuel	Services
474	Retail sale of ICT equipment	Services
475	Retail sale of household equipment	Services
476	Retail sale of cultural goods	Services
477	Retail sale of other goods Retail sale via stalls & markets	Services Services
478	the state of the s	
478 479	Retail trade not in stores	Services

500	IPUMS Description Water transport	Aggregate Se Trptservice
511	Passenger air transport	Trptservice
512	Freight air transport	Trptservice
521	Warehousing & storage	Trptservice
522	Support activities for transportation	Trptservice
531 532	Postal activities Courier activities	Trptservice Trptservice
532 551	Short term accommodation	Services
552	Camping grounds & parks	Services
559	Other accommodation	Services
561	Restaurants & mobile food services	Services
562	Event catering & food services	Services
563	Beverage serving activities	Services
581	Publishing of books & periodicals	ICT
582	Software publishing	ICT
591	Motion picture & television	ICT
592 601	Sound recording & publishing	ICT ICT
601	Radio broadcasting Television broadcasting	ICT
611	Wired telecommunications	ICT
612	Wireless telecommunications	ICT
613	Satellite telecommunications	ICT
619	Other telecommunications	ICT
631	Data processing & hosting	ICT
639	Other information services	ICT
641	Monetary intermediation	Services
642	Activities of holding companies	Services
643	Trusts & similar financial entities	Services
649	Other financial services	Services
651	Insurance	Services
653 660	Pension funding Activities auxiliary to finance	Services
660 663	Fund management activities	Services
681	Real estate with own property	Services
682	Real estate on a fee basis	Services
691	Legal activities	ICT
692	Accounting, bookkeeping, tax	ICT
701	Activities of head offices	ICT
702	Management consultancy	ICT
711	Architectural & engineering	ICT
712	Technical testing	analysis
ICT		100
721	R&D on natural sciences R&D on social sciences	ICT ICT
731	Advertising	ICT
732	Marketing research & polling	ICT
741	Specialized design activities	ICT
742	Photographic activities	ICT
749	Other professional activities n.e.c.	ICT
750	Veterinary activities	ICT
770	Renting & leasing activities	ICT
781	Employment placement agencies	ICT
782 783	Temporary employment agencies Other human resources activities	ICT ICT
791	Travel agencies & tour operators	ICT
799	Other reservation activities	ICT
801	Private security activities	ICT
802	Security system services	ICT
803	Investigation activities	ICT
811	Facilities support activities	ICT
812	Cleaning activities	ICT
813	Landscape care & maintenance	ICT
821	Office administrative activities	ICT
822	Activities of call centers	ICT
823 829	Organization of conventions	ICT ICT
829 841	Business support activities n.e.c. State administration & policy	Services
841	Provision of services to the community	Services
843	Compulsory social security	Services
851	Pre-primary & primary education	Services
852	Secondary education	Services
853	Higher education	Services
854	Other education	Services
855	Educational support activities	Services
861	Hospital activities	Services
862	Medical & dental practice	Services
869	Other human health activities	Services
871 872	Residential nursing care	Services
872	Residential care for mental health Residential care for elderly	Services Services
873	Other residential care activities	Services
881	Social work activities for elderly	Services
889	Other social activities without accommodation	Services
900	Creative, arts & entertainment	Services
920	Gambling & betting activities	Services
931	Sports activities	Services
932	Other amusement & recreation	Services
941	Business & professional organizations	Services
942	Trade unions	Services
949	Other membership organizations	Services
951	Repair of computers & communications	Services
952	Repair of personal & household goods	Services
970	Activities of households as employers	Services
981	Goods-producing activities for own use	Services
982	Service-producing activities for own use	Services
990	Extraterritorial organizations	Services
998	Unknown	