On the Investment Network and Development
Online Appendix

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1 Additional robustness

Comparisons to the investment network estimates in **?**.

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

(a) 1972

Sector	This Paper	VLW
Agriculture	0.00	0.00
Construction	2.72	2.12
Durables	0.48	0.29
Electronics	0.67	0.70
ICT	1.11	2.24
Machinery	2.08	2.42
Nondurables	0.16	0.03
Services	0.80	0.51
Transportation	1.84	1.60
Transportation Services	0.14	0.08

(b) 1992

Sector	This Paper	VLW
Agriculture	0.00	0.00
Construction	2.12	1.57
Durables	0.42	0.35
Electronics	1.10	1.06
ICT	2.18	3.16
Machinery	1.57	1.83
Nondurables	0.15	0.04
Services	0.93	0.66
Transportation	1.42	1.26
Transportation Services	0.10	0.06

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

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

(a) 1972

Sector	This Paper	VLW
Agriculture	0.00	0.00
Construction	0.04	0.13
Durables	0.06	0.04
Electronics	0.11	0.07
ICT	0.08	0.32
Machinery	0.31	0.23
Nondurables	0.07	0.01
Services	0.04	0.04
Transportation	0.18	0.04
Transportation Services	0.04	0.01

(b) 1992

Sector	This Paper	VLW
Agriculture	0.00	0.00
Construction	0.02	0.14
Durables	0.05	0.4
Electronics	0.14	0.10
ICT	0.20	0.47
Machinery	0.21	0.17
Nondurables	0.07	0.01
Services	0.05	0.05
Transportation	0.11	0.04
Transportation Services	0.03	0.00

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: Comparison with vom Lehn and Winberry (2022)

(a) Outdegrees

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

(b) Homophiily

VLW Sector	This Paper	VLW
1	0.00	0.00
2	0.00	0.00
3	0.00	0.00
4	0.25	0.10
5	0.00	0.00
6	0.00	0.03
7	0.05	0.00
8	0.00	0.00
9	0.00	0.00
10	0.01	0.08
11	0.16	0.26
12	0.09	0.06
13	0.02	0.06
14	0.06	0.02
15	0.02	0.10
16	0.01	0.04
17	0.02	0.04
18	0.00	0.00
19	0.01	0.00
20	0.00	0.00
21	0.00	0.00
22	0.00	0.00
23	0.00	0.00
24	0.04	0.00
25	0.00	0.00
26	0.11	0.10
27	0.01	0.05
28	0.04	0.01
29	0.20	0.27
30	0.00	0.00
31	0.01	0.03
32	0.00	0.00
33	0.28	0.59
34	0.00	0.00
35	0.00	0.00
36	0.00	0.00
37	0.00	0.00
38	0.00	0.02
39	0.00	0.00
40	0.00	0.00
41	0.00	0.00

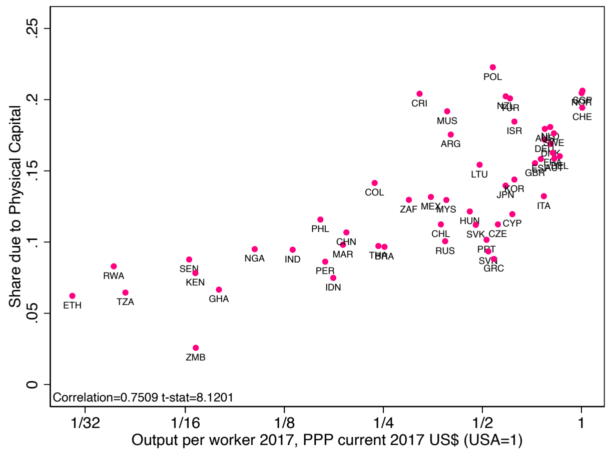
Notes: Comparison between investment network estimates for 41 sectors in VLW in year 2012, corresponding to the year in which we fix the occupational composition of the labor force. This table reports the row sum of the networks, *outdegrees*, as well as the weight of the diagonal in the network, *homophily*.

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.[1] 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, $\left(\frac{k}{y}\right)^{\frac{\alpha}{1-\alpha}}$ 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.

[1]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.*

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

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.

$$\mu_{ni}(1-\gamma_i)p_{it}y_{it} = p_{nt}m_{nit}$$

$$\alpha_i\gamma_i p_{it}y_{it} = r_{it}k_{it}$$

$$\omega_{ji}p_{it}^x x_{it} = p_{jt}\chi_{jit}$$

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, $g_{p_i y_i}$ 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.[2]

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.

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

Along an BGP the Domar weight is a constant and the investment rate is proportional to the discount factor.[3] 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*

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

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 ζ_{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

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

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

$$x_{it} = \prod_j \left(\frac{x_{it}}{k_{it+1}} \frac{\alpha_i \gamma_i}{\frac{1}{R_t} - (1-\delta_i) \frac{p^x_{it+1}}{p^x_{it}}} \frac{\eta_{it+1}}{\eta_{jt}} y_{jt} \right)^{\omega_{ji}} \quad \text{or} \quad k_{it+1} = \prod_j \left(\frac{\alpha_i \gamma_i}{\frac{1}{R_t} - (1-\delta_i) \frac{p^x_{it+1}}{p^x_{it}}} \frac{\eta_{it+1}}{\eta_{jt}} y_{jt} \right)^{\omega_{jit}}.$$

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

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

[2] Alternatively, describe this as

$$\zeta_{nt} \frac{y_{nt}}{c_{nt}} = \zeta_{nt} + \sum_i \frac{\alpha_i \gamma_i \omega_{ni}}{\frac{1}{R_t} - (1-\hat{\delta}_i) \frac{p^x_{it+1}}{p^x_{it}}} \frac{x_{it+1}}{k_{it+1}} \frac{x_{it}}{x_{it+1}} \zeta_{it+1} \frac{y_{it+1}}{c_{it+1}} + \sum_j (1-\gamma_j) \mu_{njt} \zeta_{jt} \frac{y_{jt}}{c_{jt}}$$

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

[3] 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 $\tilde{l}_i = \frac{l_i^\star}{\gamma_i(1-\alpha_i)}$. 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

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

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

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,

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

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).

$$\ln(\boldsymbol{\nu}) = \sum_n \tilde{\zeta}_n \ln(p_n) + \sum_n \tilde{\zeta}_n \ln(y_n) - \sum_n \tilde{\zeta}_n \ln(\eta_n)$$

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.[4]

[4] 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.

$$\ln(\nu_t) = \tilde{\boldsymbol{\zeta}}_{\boldsymbol{t}}{}' \Xi_t(\Gamma \boldsymbol{\lambda_t} + \boldsymbol{\iota_t}) - \tilde{\boldsymbol{\zeta}}_{\boldsymbol{t}}{}' \ln(\boldsymbol{\eta}_t).$$

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

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, $\tilde{\eta}_t \iota_t$

$$\begin{aligned}\sum_n \tilde{\eta}_{nt}\iota_{nt} &= \sum_n \tilde{\eta}_n \gamma_n (1-\alpha_n) \ln(\tilde{l_n}) + \tilde{\eta}_{nt}\gamma_n\alpha_n \sum_j \omega_{jn} \ln(\frac{\eta_{nt}}{\eta_{jt}}) \\ &\quad + \tilde{\eta}_{nt}(1-\gamma_n) \sum_j \mu_{jn} \ln(\frac{\eta_{nt}}{\eta_{jt}})) - \tilde{\eta}_{nt}\gamma_n\alpha_n \sum_i \omega_{in} \ln(\tilde{\beta}_i \hat{\delta}_i)\end{aligned}$$

which can be rewritten as

$$\begin{aligned}\sum_n \tilde{\eta}_n \iota_n &= \sum_n \tilde{\eta}_n \gamma_n (1-\alpha_n) \ln(\tilde{l_{nt}}) + \sum_n \tilde{\eta}_{nt}(\gamma_n\alpha_n + 1 - \gamma_n) \ln(\eta_{nt}) \\ &\quad - \sum_n \tilde{\eta}_{nt}\gamma_n\alpha_n \sum_j \omega_{jn} \ln(\eta_{jt}) - \sum_n \tilde{\eta}_n (1-\gamma_n) \sum_j \mu_{jn} \ln(\eta_j) \\ &\quad - \tilde{\eta}_{nt}\gamma_n\alpha_n \sum_i \omega_{in} \ln(\tilde{\beta}_i \delta_i).\end{aligned}$$

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

$$\ln(\nu_t) = \tilde{\boldsymbol{\eta}}_{\boldsymbol{t}}{}' \Gamma \boldsymbol{\lambda_t} - \tilde{\boldsymbol{\eta}}_{\boldsymbol{t}}{}' \Gamma (1-\alpha) \ln(\Gamma(1-\alpha)\boldsymbol{\eta_t}) - \tilde{\boldsymbol{\eta}}_{\boldsymbol{t}}{}' \Gamma \boldsymbol{\alpha} \Omega' \tilde{\beta}^{-1} \hat{\delta}$$

In vector form

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

■

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

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

$$\sum_i \xi_{in} \omega_{int}^{\nu_n} = B_n \tag{5}$$

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

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

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

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

Replacing 6 into 7 we obtain

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

as well as

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

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

$$\dot{k}_1(t) = x_1(t) - (\delta_1 + g_1^k) k(t)$$

$$\dot{k}_2(t) = x_2(t) - (\delta_2 + g_2^k) k(t)$$

$$k_1^{\alpha}(t) = c_1(t) + \sum_{i=1,2} \chi_{1i}(t)$$

$$k_2^{\alpha}(t) = c_2(t) + \sum_{i=1,2} \chi_{2i}(t)$$

$$x_1(t) = \prod_{j=1,2} \chi_{j1}(t)^{\omega_{j1}}$$

$$x_2(t) = \prod_{j=1,2} \chi_{j2}(t)^{\omega_{j2}}$$

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.

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

$$\lambda_i(t) = \mu_j(t) \omega_{ij} \frac{x_j(t)}{\chi_{ij}(t)}$$

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

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

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

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

$$\frac{\dot{\lambda}_j(t)}{\lambda_j(t)} - \frac{\dot{x_i(t)}}{x_i(t)} + \frac{\dot{\chi_{ji}(t)}}{\chi_{ji}(t)} = -\frac{\lambda_i(t)}{\mu_i(t)}\frac{\partial F(k_i(t))}{\partial k_i(t)} + (\delta_i + g_i^k)$$

$$\sigma\frac{\dot{c_j(t)}}{c_j(t)} = \frac{\lambda_i(t)}{\mu_i(t)}\frac{\partial F(k_i(t))}{\partial k_i(t)} - \frac{\dot{x_i(t)}}{x_i(t)} + \frac{\dot{\chi_{ji}(t)}}{\chi_{ji}(t)} - (\delta_i + g_i^k - \rho)$$

Which in terms of allocations is simply

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

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

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

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

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

Therefore, the Euler equation is

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

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

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

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

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

The optimal path is further characterized by

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

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

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 χ_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

$$\dot{k}_i(t) = \prod_{j=1,2}\left(F(k_j(t)) - c_j(t)\right)^{\omega_{ji}}\prod_{j=1,2}\kappa_{ji}(t)^{\omega_{ji}} - (\delta_i + g_i^k)k_i(t), \tag{13}$$

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

$$\frac{\dot{\kappa}_{ji}(t)}{\kappa_{ji}(t)} - \frac{\dot{\kappa}_{ji'}(t)}{\kappa_{ji'}(t)} = -(\omega_{ii}\frac{x_i(t)}{\chi_{ii}(t)}\frac{\partial F(k_i(t))}{\partial k_i(t)} - \omega_{i'i'}\frac{x_{i'}(t)}{\chi_{i'i'}(t)}\frac{\partial F(k_{i'}(t))}{\partial k_{i'}(t)}) + (\delta_i + g_i^k) - (\delta_{i'} + g_{i'}^k) + \frac{\dot{x}_i(t)}{x_i(t)} - \frac{\dot{x}_{i'}(t)}{x_{i'}(t)} \tag{14}$$

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

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

then

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

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

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

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

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

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

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

Finally,

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

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

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

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,

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

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,

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

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

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

which we can replace back in the expression for the price λ_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,

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

Replacing back, 18 we can solve for

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

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

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

$$\dot{k}_i(t) = \prod_{j=1,2} \left(F(k_j(t)) - c_j(t)\right)^{\omega_{ji}} \prod_{j=1,2} \kappa_{ji}(t)^{\omega_{ji}} - (\delta_i + g_i^k)k_i(t),$$

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

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
D15	Nondurables
D16	Nondurables
D17	Nondurables
D18	Nondurables
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
D32	Electronics
D33	Electronics
D34	Transportation
D35	Transportation
D36	Durables
D37	Services
E40	Services
E41	Services
F45	Construction
G50	Services
G51	Services
G52	Services
H55	Services
I60	Trptservices
I61	Trptservices
I62	Trptservices
I63	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
O90	Services
O91	Services
O92	Services
O93	Services
P95	Services
P96	Services
P97	Services
Q99	Services

(b) Mensah and de Vries (2023)

MDV Sector (ISIC Rev.4)	Sector Description	Aggregate Sector
A	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
B	Mining	Mining
H	Transport	Trptservices

4.1 IPUMS: Country Specific Crosswalks

Table 5: Brazil

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
10030	Dairy products	Nondurables
10091	Animal feed	Nondurables
10092	Sugar	Nondurables
10093	Roasted coffee	Nondurables
10099	Other food products	Nondurables
10999	Non-specified food products	Nondurables
11000	Beverages	Nondurables
12000	Tobacco products	Nondurables
13001	Fibers, weaving	Nondurables
13002	Textile objects	Nondurables
13999	Non-specified textiles	Nondurables
14001	Clothing articles	Nondurables
14002	Custom clothing articles	Nondurables
14999	Non-specified clothing	Nondurables
15011	Leather preparation	Nondurables
15012	Leather objects	Nondurables
15020	Footwear	Nondurables

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	Non-metallic mineral products	Durables
24010	Steel and derivatives	Durables
24021	Precious metals	Durables
24022	Non-ferrous metals	Durables
24030	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	Services
56000	Food services	Services
58000	Publishing, printing	Services
59000	Cinema, videos, TV, recording	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
77000	Machine, equipment rental	Services
95000	Repair of computers, personal goods	Services
97000	Domestic services	Services
99000	International organizations	Services

Table 6: Switzerland

IPUMS Code	Description	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	Flour mills	Nondurables
214	Canned goods, juices	Nondurables
216	Sugar, candy, chocolate, pastry	Nondurables
219	Animal feed	Nondurables
220	Beverage industry	Nondurables
230	Tobacco industry	Nondurables
241	Spinning, weaving	Nondurables
245	Machine embroidery	Nondurables
246	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
291	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
422	Interior improvements	Construction
423	Electrical wiring	Construction
511	Wholesale, retail products	Services
512	Food, beverage, tobacco retail	Services
513	Drug, chemical retail	Services
514	Textile, leather retail	Services
516	Furniture, rugs, carpets	Services
517	Paper, books, office supplies	Services
518	Precision instruments retail	Services
519	Machines, vehicles, tech. equip. retail	Services
570	Restaurant, lodging	Services
580	Repair activity	Services
610	Railroads	Trptservices
630	Shipping	Trptservices
640	Air transport	Trptservices
651	Road, pipeline transportation	Trptservices
652	Transport brokers, agencies	Trptservices
660	Communication activity	ICT
710	Banking, finance	Services
720	Insurance	Services
730	Real estate offices	Services
751	Consulting, legal, computer services	ICT
752	Certified public accountant	ICT
753	Law firm, notary office	ICT
761	Commercial laundry, dry cleaning	Services
762	Hair, beauty salon	Services
763	Cleaning, funeral, personal services	Services
810	Teaching	Services
820	Research and development	ICT
831	Doctor, vet offices, medical services	Services
833	Hospitals, clinics	Services
840	Public roads, water services	Services
851	Homes, shelters	Services
855	Social work orgs	Services
861	Religious, philosophical orgs	Services
862	Convent, congregation	Services
870	Community, social advocacy	Services
881	Arts, sports, cultural services	Services
882	Cinema, theater, music	Services
886	Films, radio, TV studios	ICT
890	Domestic services	Services
911	Public administration	Services
912	Prison enforcement	Services
998	Unknown	-

Table 7: China

IPUMS Code	Description	Sector
0	NIU (not in universe)	
1	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
47	Civil engineering construction	Construction
48	Cable, pipe installation	Construction
49	Construction, ornamentation	Construction
50	Geological prospecting	Services
51	Water conservancy	Services
52	Railway transport	Trptservices
53	Highway transport	Trptservices
54	Pipeline transport	Trptservices
55	Water transport	Trptservices
56	Air transport	Trptservices
57	Transport auxiliary	Trptservices
58	Other transport	Trptservices
59	Warehousing	Trptservices
60	Post, telecommunication	ICT
61	Food, beverage wholesale	Services
62	Power, materials, machinery wholesale	Services
63	Other wholesale	Services
64	Retail trade	Services
65	Commercial brokerage	Services
67	Restaurants	Services
68	Finance	Services
70	Insurance	Services
72	Real estate development	Services
73	Real estate management	Services
74	Real estate brokerage	Services
75	Public facilities services	Services
76	Resident services	Services
78	Hotels	Services
79	Lease services	Services
80	Tour services	Services
81	Recreational services	Services
82	Information consultancy	ICT
83	Computer services	ICT
84	Other social services	Services
85	Health services	Services
86	Sports	Services
87	Social welfare	Services
89	Education	Services
90	Culture, arts	Services
91	Radio, television, films	ICT
92	Scientific research	ICT
93	General technical services	ICT
94	State administration	Services
95	Political party admin	Services
96	Social organizations	Services
97	Mass organizations	Services
99	Other industries	-

Table 8: Costa Rica

IPUMS Code	Description	Sector
0	NIU (not in universe)	
11	General agricultural prod. & Agriculture	
12	Animal breeding	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
152	Dairy processing	Nondurables
153	Ground flour, starch proc.	Nondurables
154	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	Lumber cutting, finishing	Nondurables
202	Wood, cork, straw products	Durables
210	Paper, paper products	Nondurables
221	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	Metal foundry	Durables
281	Metal products, vapor tanks	Durables
289	Other metal products	Durables
291	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	Electronics
322	Radio, TV transmitters	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	Gas production, distribution	Services
410	Water purification, distribution	Services
451	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	Services
514	Wholesale, intermediates	Services
515	Wholesale, machinery, equip.	Services
519	Other wholesale	Services
520	Retail, personal items repair	Services
521	Retail, non-specialty stores	Services
522	Retail, food stores	Services
523	Retail, new goods stores	Services
524	Retail, used-goods stores	Services
525	Retail, not in stores	Services
526	Repair, personal, household items	Services
551	Hotels, temporary housing	Services
552	Restaurants, bars	Services
553	Other hotels, restaurants	Services
602	Other land transportation	Trptservices
611	Ocean, coastal transport	Trptservices
621	Air transport	Trptservices
630	Auxiliary transport, agencies	Trptservices
641	Postal services	Trptservices
642	Telecommunications	ICT
651	Monetary intermediation	Services
659	Other financial intermediation	Services
660	Insurance, pensions	Services
671	Financial support services	Services
701	Real estate activities	Services
702	Real estate commission	Services
711	Transport equip. rental	ICT
712	Other machinery rental	ICT
713	Personal items rental	ICT
721	Data management consultants	ICT
722	Data management programming	ICT
723	Data processing	ICT
725	Office machinery repair	ICT
731	R&D, natural sciences	ICT
741	Judicial, accounting services	ICT
742	Architecture, engineering	ICT
743	Advertising services	ICT
749	Other business services	ICT
751	State admin, community services	Services
752	General public administration	Services
753	Social security plans	Services
801	Elementary education	Services
802	Secondary education	Services
803	Higher education	Services
809	Tech., vocational education	Services
851	Human health activities	Services
852	Veterinary services	Services
853	Social assistance	Services
900	Waste, sewage removal	Services
911	Business, professional orgs.	Services
912	Labor union activities	Services
919	Other organizations	Services
921	Filmmaking, radio, TV	ICT
923	Libraries, museums, archives	Services
924	Sports, recreation	Services
930	Other service activities	Services
950	Private homes, domestic services	Services
990	International orgs.	Services

Table 9: Indonesia

IPUMS Code	Description	Sector
11	Food plants, agri., plantation	Agriculture
12	Animal husbandry	Agriculture
13	Combined agri. or plantation	Agriculture
14	Agri./plantation/animal husbandry	Agriculture
15	Hunting and trapping	Agriculture
20	Forestry	Agriculture
50	Fisheries	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	Iron ore mining	Mining
132	Metal and tin mining	Mining
141	Stone, clay, sand excavation	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
155	Beverages	Nondurables
160	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	Nondurables
191	Tanning, leather processing	Nondurables
192	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	Nondurables
231	Coal based industries	Nondurables
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
261	Glass products	Durables
262	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	Basic iron, steel	Durables
272	Precious, non-ferrous metals	Durables
273	Metal foundries	Durables
281	Structural metal products	Durables
289	Other metal products	Durables
291	General purpose machinery	Machinery
292	Special purpose machinery	Machinery
293	Domestic appliances n.e.c.	Electronics
300	Office, accounting equipment	Electronics
311	Electric motors, transformers	Electronics
312	Electricity distribution	Electronics
313	Insulated wire, cable	Electronics
314	Batteries	Electronics
315	Lighting equipment	Electronics
319	Other electrical equipment	Electronics
321	Electronic valves, tubes	Electronics
322	TV, radio transmitters	ICT
323	Radio, TV receivers	ICT
331	Medical, measuring appliances	Electronics
332	Optical instruments	Electronics
333	Watches, clocks	Electronics
341	Automobiles	Transportation
342	Auto bodies, trailers	Transportation
343	Auto parts, accessories	Transportation
351	Shipbuilding, repair	Transportation
352	Train manuf., spare parts	Transportation
353	Aircraft manuf., repair	Transportation
359	Other transport equipment	Transportation
361	Furniture	Durables
369	Jewelry	Durables
371	Metal recycling	Services
372	Non-metal recycling	Services
401	Electric power	Services
402	Gas	Services
403	Steam, hot springs	Services
410	Drinking water supply	Services
451	Land preparation	Construction
452	Building construction	Construction
453	Building installation	Construction
454	Building finishing	Construction
455	Leasing construction equip.	Construction
501	Auto trading	Services
502	Auto maintenance, repair	Services
503	Auto spare parts	Services
504	Motorcycle parts, accessories	Services
505	Fuel retail	Services
511	Wholesale trade by fee	Services
512	Agri. material, live animals	Services
513	Household goods trade	Services
514	Intermediate trade, non-food	Services
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
703	Tourist real estate	Services
711	Transport equip. rental	ICT
712	Other machine rental	ICT
713	Other goods rental	ICT
721	Hardware consulting	ICT
722	Software consulting	ICT
723	Data processing	ICT
724	Database services	ICT
725	Office equip., computer repair	ICT
729	Other computer-related activities	ICT
731	R&D in science, tech	ICT
732	R&D in social sciences	ICT
741	Law, accounting, tax, mktg. services	ICT
742	Arch., eng., analysis, testing	ICT
743	Advertising	ICT
749	Other company services	ICT
751	Government admin.	Services
752	International relations, defense	Services
753	Social security	Services
801	Primary school	Services
802	High school	Services
803	Tertiary school	Services
809	Education services n.e.c.	Services
851	Health services	Services
852	Veterinary services	Services
853	Social welfare	Services
900	Cleaning services	Services
911	Business orgs.	Services
912	Labor orgs.	Services
919	Other organizations	Services
921	Film, radio, TV	ICT
922	News services	ICT
923	Libraries, archives, museums	Services
924	Sports, recreation	Services
930	Other service activities	Services
950	Personal household services	Services
990	International orgs.	Services
998	Unknown	
999	NIU (not in universe)	

Table 10: India

IPUMS Code	Description	Sector
11	Growing of crops	Agriculture
12	Farming of animals	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
111	Crude petroleum extraction	Mining
112	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	Dairy products	Nondurables
153	Grain mill products	Nondurables
154	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
191	Leather tanning	Nondurables
192	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	Nondurables
233	Nuclear fuel processing	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	Basic iron, steel	Durables
272	Precious, non-ferrous metals	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	Office, accounting machinery	Electronics
311	Electric motors, transformers	Electronics
312	Electricity distribution	Electronics
313	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	TV, radio receivers	ICT
331	Medical appliances	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	Aircraft, spacecraft	Transportation
359	Other transport equipment	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	Construction
452	Building construction	Construction
453	Building installation	Construction
454	Building completion	Construction
455	Construction equipment renting	Construction
501	Motor vehicle sales	Services
502	Motor vehicle repair	Services
503	Motor vehicle parts sales	Services
504	Motorcycle sales, repair	Services
505	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	Trptservices
602	Other land transport	Trptservices
603	Pipeline transport	Trptservices
611	Sea transport	Trptservices
612	Inland water transport	Trptservices
621	Scheduled air transport	Trptservices
622	Non-scheduled air transport	Trptservices
630	Transport support	Trptservices
641	Post, courier activities	Trptservices
642	Telecommunications	ICT
651	Monetary intermediation	Services
659	Other financial intermediation	Services
660	Insurance, pension funding	Services
671	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
753	Social security activities	Services
801	Primary education	Services
802	General secondary education	Services
803	Higher education	Services
809	Adult education	Services
851	Human health activities	Services
852	Veterinary activities	Services
853	Social work activities	Services
900	Sewage, refuse disposal	Services
911	Business, employer organizations	Services
912	Trade union activities	Services
919	Other membership organizations	Services
921	Motion picture, radio, TV	ICT
922	News agency activities	ICT
923	Libraries, museums	Services
924	Sports, recreation	Services
930	Other service activities	Services
950	Private households with employees	Services
990	Extra-territorial organizations	Services
999	NIU (not in universe)	

Table 11: Morocco

IPUMS Code	IPUMS Description	Aggregate Sector
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
62	Air transportation	Services
63	Other transportation services	Services
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

IPUMS Code	IPUMS Description	Aggregate Sector
1	Crop and animal production	Agriculture
2	Forestry and logging	Agriculture
3	Fishing and aquaculture	Agriculture
5	Mining and quarrying	Mining
10	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
37	Sewerage	Services
38	Waste management	Services
41	Building construction	Construction
42	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
62	Computer programming	ICT
63	Information services	ICT
64	Financial services	Services
65	Insurance	Services
66	Auxiliary financial services	Services
68	Real estate	Services
69	Legal and accounting	ICT
70	Head offices and management	ICT
71	Architectural activities	ICT
72	Scientific R&D	ICT
73	Advertising	ICT
74	Professional activities	ICT
77	Rental and leasing	ICT
79	Travel agencies	ICT
80	Security services	ICT
81	Building services	ICT
82	Office administration	ICT
84	Public administration	Services
85	Education	Services
86	Human health	Services
87	Residential care	Services
88	Social work	Services
90	Arts and entertainment	Services
91	Libraries and museums	Services
92	Gambling and betting	Services
93	Sports and recreation	Services
94	Membership organizations	Services
95	Repair of household goods	Services
96	Other personal services	Services
97	Household employment	Services
99	Extraterritorial activities	Services
998	Unknown	
999	NIU (not in universe)	

Table 13: Malaysia

IPUMS Code	IPUMS Description	Aggregate Sector
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
141	Stone, sand, clay mining	Mining
142	Other mining and quarrying	Mining
151	Meat, fish, fruit processing	Nondurables
152	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	Fabricated metal products	Durables
291	General machinery	Machinery
292	Special machinery	Machinery
293	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
453	Building installation	Construction
454	Building completion	Construction
455	Renting of construction equipment	Construction
501	Sale of motor vehicles	Services
502	Maintenance, repair of motor vehicles	Services
503	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
524	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	Trptservices
602	Other land transport	Trptservices
611	Sea and coastal water transport	Trptservices
612	Inland water transport	Trptservices
621	Scheduled air transport	Trptservices
622	Non-scheduled air transport	Trptservices
630	Supporting and auxiliary transport activities	Trptservices
641	Post and courier activities	Trptservices
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
713	Rental of personal goods	ICT
721	Hardware consultancy	ICT
722	Software consultancy	ICT
723	Data processing services	ICT
724	Data base activities	ICT
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
911	Activities of business organizations	Services
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
998	Unknown	Unknown

Table 14: Nigeria

IPUMS Code	IPUMS Description	Aggregate Sector
1	Crop and animal prod., hunting	Agriculture
2	Forestry and logging	Agriculture
3	Fishing and aquaculture	Agriculture
5	Coal and lignite mining	Mining
6	Petroleum and gas extraction	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
28	Machinery and equipment manuf.	Machinery
29	Motor vehicles manuf.	Transportation
30	Other transport equipment manuf.	Transportation
31	Furniture manuf.	Durables
32	Other manufacturing	Durables
33	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	Accommodation services	Services
56	Food and beverage services	Services
58	Publishing services	ICT
59	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
65	Insurance and pension funding	Services
66	Financial auxiliary services	Services
68	Real estate activities	Services
69	Legal and accounting	ICT
70	Head office activities	ICT
71	Architectural and engineering	ICT
72	Scientific R&D	ICT
73	Advertising and market research	ICT
74	Professional services	ICT
75	Veterinary activities	ICT
77	Rental and leasing	ICT
78	Employment activities	ICT
79	Travel agency services	ICT
80	Security services	ICT
81	Building and landscape services	ICT
82	Office support services	ICT
84	Public administration and defense	Services
85	Education services	Services
86	Human health activities	Services
87	Residential care activities	Services
88	Social work activities	Services
90	Creative and entertainment activities	Services
91	Libraries and museums	Services
92	Gambling and betting	Services
93	Sports and recreation	Services
94	Membership organizations	Services
95	Computer and household goods repair	Services
96	Personal service activities	Services
97	Household employment activities	Services
98	Undifferentiated household activities	Services
99	Extraterritorial activities	Services
998	Unknown	
999	NIU (not in universe)	

Table 15: Philippines

IPUMS Code	IPUMS Description	Aggregate Sector
0	NIU (not in universe)	
11	Non-perennial crops	Agriculture
12	Perennial crops	Agriculture
14	Animal production	Agriculture
15	Support activities to agriculture	Agriculture
19	Other crop and animal production	Agriculture
21	Silviculture and forest activities	Agriculture
22	Logging	Agriculture
23	Gathering of non-wood forest products	Agriculture
24	Support services to forestry	Agriculture
31	Fishing	Agriculture
32	Aquaculture	Agriculture
50	Hard coal and lignite mining	Mining
61	Crude petroleum extraction	Mining
62	Natural gas extraction	Mining
71	Iron ore mining	Mining
72	Non-ferrous metal ores mining	Mining
81	Quarrying of stone, sand, and clay	Mining
89	Other mining	Mining
91	Support activities for petroleum and gas extraction	Mining
99	Support activities for other mining	Mining
101	Meat processing	Nondurables
102	Fish processing	Nondurables
103	Fruit and vegetable processing	Nondurables
104	Vegetable and animal oils	Nondurables
105	Dairy products manufacturing	Nondurables
106	Grain mill products	Nondurables
107	Other food products	Nondurables
108	Prepared animal feeds	Nondurables
110	Beverages manufacturing	Nondurables
120	Tobacco products manufacturing	Nondurables
131	Textiles manufacturing	Nondurables
139	Other textiles manufacturing	Nondurables
141	Wearing apparel manufacturing	Nondurables
142	Custom tailoring and dressmaking	Nondurables
143	Knitted and crocheted apparel	Nondurables
151	Tanning and dressing of leather	Nondurables
152	Footwear manufacturing	Nondurables
161	Sawmilling	Durables
162	Wood, cork, straw products	Durables
170	Paper and paper products	Nondurables
180	Printing and media reproduction	Nondurables
191	Coke and other products	Nondurables
192	Refined petroleum products	Nondurables
199	Other fuel products	Nondurables
201	Basic chemicals manufacturing	Nondurables
202	Other chemical products	Nondurables
210	Pharmaceuticals manufacturing	Nondurables
221	Rubber products manufacturing	Nondurables
222	Plastics products manufacturing	Nondurables
231	Glass products manufacturing	Durables
239	Non-metallic mineral products	Durables
241	Basic iron and steel	Durables
242	Precious and other non-ferrous metals	Durables
243	Metal casting	Durables
251	Structural metal products	Durables
252	Weapons and ammunition manufacturing	Durables
259	Other fabricated metal products	Durables
261	Electronic components manufacturing	Electronics
262	Computer and peripherals manufacturing	Electronics
263	Communication equipment manufacturing	Electronics
264	Consumer electronics manufacturing	Electronics
265	Measuring and control equipment	Electronics
266	Electromedical equipment	Electronics
267	Optical and photographic instruments	Electronics
271	Electric motors and transformers	Electronics
272	Batteries and accumulators	Electronics
273	Wiring devices manufacturing	Electronics
274	Electric lighting equipment	Electronics
275	Domestic appliances manufacturing	Electronics
279	Other electric equipment manufacturing	Electronics
281	General purpose machinery	Machinery
282	Special purpose machinery	Machinery
291	Motor vehicles manufacturing	Transportation
292	Motor vehicle bodies and trailers	Transportation
293	Motor vehicle parts	Transportation
301	Shipbuilding and boatbuilding	Transportation
303	Aircraft manufacturing	Transportation
309	Other transport equipment	Transportation
310	Furniture manufacturing	Durables
321	Jewelry manufacturing	Durables
322	Musical instruments manufacturing	Durables
323	Sports goods manufacturing	Durables
324	Games and toys manufacturing	Durables
325	Medical instruments and supplies	Durables
329	Other manufacturing	Durables
331	Metal products repair	Durables
332	Industrial machinery installation	Durables
351	Electric power generation	Services
352	Gas distribution	Services
353	Steam and air conditioning supply	Services
360	Water supply	Services
370	Sewerage	Services
381	Waste collection	Services
382	Waste treatment and disposal	Services
383	Materials recovery	Services
390	Remediation and waste management	Services
410	Building construction	Construction
421	Roads and railways construction	Construction
422	Utility projects construction	Construction
429	Other civil engineering projects	Construction
431	Demolition and site preparation	Construction
432	Electrical and plumbing installation	Construction
433	Building completion and finishing	Construction
439	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
461	Wholesale on a fee or contract basis	Services
462	Wholesale of agricultural raw materials	Services
463	Wholesale of food, beverage and tobacco	Services
464	Wholesale of household goods	Services
465	Wholesale of machinery and equipment	Services
466	Other specialized wholesale	Services
469	Non-specialized wholesale trade	Services
471	Non-specialized retail trade	Services
472	Retail sale of food, beverages and tobacco	Services
473	Retail sale of automotive fuel	Services
474	Retail sale of information and communication equipment	Services
475	Retail sale of household equipment	Services
476	Retail sale of cultural and recreation goods	Services
477	Retail sale of other goods	Services
478	Retail sales via stalls and markets	Services
479	Other retail trade	Services
491	Rail transport	Trptservices
492	Bus transport	Trptservices
493	Land transport and pipelines	Trptservices
501	Sea and coastal transport	Trptservices
502	Inland water transport	Trptservices
511	Passenger air transport	Trptservices
512	Freight air transport	Trptservices
521	Warehousing	Trptservices
522	Support activities for transportation	Trptservices
531	Postal activities	Trptservices
532	Courier activities	Trptservices
551	Short term accommodation	Services
559	Other accommodation	Services
561	Restaurant and food service	Services
562	Event catering	Services
563	Beverage serving activities	Services
581	Publishing of books and periodicals	ICT
582	Software publishing	ICT
591	Motion picture and TV program production	ICT
592	Sound recording and music publishing	ICT
601	Radio broadcasting	ICT
602	TV programming	ICT
611	Wired telecommunications	ICT
612	Wireless telecommunications	ICT
613	Satellite telecommunications	ICT
619	Other telecommunications	ICT
620	Computer programming and consultancy	ICT
631	Data processing and hosting	ICT
639	Other information service activities	ICT
641	Monetary intermediation	Services
642	Holding companies activities	Services
643	Trusts and funds management	Services
649	Other financial services	Services
651	Insurance and reinsurance	Services
653	Pension funding	Services
661	Activities auxiliary to financial services	Services
662	Activities auxiliary to insurance and pension funding	Services
681	Real estate activities	Services
682	Real estate activities on fee or contract basis	Services
691	Legal activities	ICT
692	Accounting and auditing activities	ICT
701	Activities of head offices	ICT
702	Management consultancy	ICT
711	Architectural and engineering activities	ICT
712	Technical testing and analysis	ICT
721	Research in natural sciences	ICT
722	Research in social sciences	ICT
723	Research in information technology	ICT
731	Advertising	ICT
732	Market research	ICT
741	Specialized design activities	ICT
742	Photographic activities	ICT
749	Other professional activities	ICT
750	Veterinary activities	ICT
772	Renting and leasing of personal goods	ICT
773	Renting of machinery and equipment	ICT
779	Other rental activities	ICT
781	Employment placement activities	ICT
782	Temporary employment agency activities	ICT
783	Other human resources activities	ICT
791	Travel agency activities	ICT
799	Other reservation services	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 services	ICT
821	Office administrative activities	ICT
822	Call centers	ICT
829	Business support services	ICT
841	Public administration	Services
842	Provision of services to the community	Services
843	Compulsory social security	Services
851	Pre-primary education	Services
852	Primary education	Services
853	Secondary education	Services
854	Higher education	Services
855	Other education services	Services
856	Educational support services	Services
861	Hospital activities	Services
862	Medical and dental practice activities	Services
869	Other human health activities	Services
871	Nursing care facilities	Services
872	Elderly and disabled care activities	Services
873	Mental health and substance abuse care	Services
879	Other residential care activities	Services
881	Social work without accommodation	Services
889	Other social work activities	Services
900	Creative arts activities	Services
910	Libraries and museums	Services
920	Gambling and betting activities	Services
931	Sports activities	Services
932	Recreation activities	Services
941	Business and professional organizations	Services
949	Other membership organizations	Services
951	Repair of computers	Services
952	Repair of consumer electronics	Services
961	Personal services	Services
962	Laundry services	Services
963	Funeral activities	Services
964	Domestic services	Services
969	Other personal services	Services
970	Household employment	Services
980	Extra-territorial organizations	Services

Table 16: Portugal

IPUMS Code	IPUMS Description	Aggregate Sector
11	Growing of non-perennial crops	Agriculture
12	Growing of perennial crops	Agriculture
14	Animal production	Agriculture
15	Mixed farming	Agriculture
16	Support activities to agriculture	Agriculture
17	Hunting, trapping	Agriculture
21	Silviculture	Agriculture
22	Logging	Agriculture
23	Gathering of non-wood products	Agriculture
24	Support services to forestry	Agriculture
31	Fishing	Agriculture
32	Aquaculture	Agriculture
51	Mining of hard coal	Mining
61	Extraction of crude petroleum	Mining
72	Mining of non-ferrous ores	Mining
81	Quarrying of stone	Mining
89	Mining and quarrying n.e.c.	Mining
101	Processing and preserving of meat	Nondurables
102	Processing of fish	Nondurables
103	Processing of fruit and vegetables	Nondurables
104	Manufacture of oils and fats	Nondurables
105	Manufacture of dairy products	Nondurables
106	Manufacture of grain mill products	Nondurables
107	Manufacture of bakery products	Nondurables
108	Manufacture of other food products	Nondurables
109	Manufacture of animal feeds	Nondurables
110	Manufacture of beverages	Nondurables
120	Manufacture of tobacco products	Nondurables
131	Spinning of textile fibres	Nondurables
132	Weaving of textiles	Nondurables
133	Finishing of textiles	Nondurables
139	Manufacture of other textiles	Nondurables
141	Manufacture of apparel	Nondurables
143	Manufacture of knitted apparel	Nondurables
151	Tanning and dressing of leather	Nondurables
152	Manufacture of footwear	Nondurables
161	Sawmilling	Durables
162	Manufacture of wood products	Durables
171	Manufacture of pulp, paper	Nondurables
172	Manufacture of paperboard articles	Nondurables
181	Printing and related activities	Nondurables
182	Reproduction of recorded media	Nondurables
192	Manufacture of petroleum products	Nondurables
201	Manufacture of chemicals	Nondurables
203	Manufacture of paints	Nondurables
204	Manufacture of soaps, detergents	Nondurables
205	Manufacture of other chemicals	Nondurables
206	Manufacture of man-made fibres	Nondurables
211	Manufacture of pharmaceuticals	Nondurables
212	Manufacture of pharmaceutical preparations	Nondurables
221	Manufacture of rubber products	Nondurables
222	Manufacture of plastics products	Nondurables
231	Manufacture of glass products	Durables
232	Manufacture of refractory products	Durables
233	Manufacture of clay building materials	Durables
234	Manufacture of porcelain and ceramic products	Durables
235	Manufacture of cement, lime	Durables
236	Manufacture of concrete products	Durables
237	Cutting, shaping stone	Durables
239	Manufacture of abrasive products	Durables
241	Manufacture of basic iron and steel	Durables
242	Manufacture of tubes, pipes	Durables
243	Manufacture of first processing of steel products	Durables
244	Manufacture of non-ferrous metals	Durables
245	Casting of metals	Durables
251	Manufacture of metal products	Durables
252	Manufacture of tanks, reservoirs	Durables
254	Manufacture of weapons	Durables
256	Treatment and coating of metals	Durables
257	Manufacture of cutlery, tools	Durables
259	Manufacture of fabricated metal products	Durables
261	Manufacture of electronic components	Electronics
262	Manufacture of computers	Electronics
263	Manufacture of communication equipment	Electronics
264	Manufacture of consumer electronics	Electronics
265	Manufacture of measuring instruments	Electronics
266	Manufacture of electromedical equipment	Electronics
267	Manufacture of optical instruments	Electronics
271	Manufacture of electric motors	Electronics
272	Manufacture of batteries	Electronics
273	Manufacture of wiring devices	Electronics
274	Manufacture of lighting equipment	Electronics
275	Manufacture of domestic appliances	Electronics
279	Manufacture of other electrical equipment	Electronics
281	Manufacture of general-purpose machinery	Machinery
282	Manufacture of other machinery	Machinery
283	Manufacture of agricultural machinery	Machinery
289	Manufacture of special-purpose machinery	Machinery
291	Manufacture of motor vehicles	Transportation
292	Manufacture of motor vehicle bodies	Transportation
293	Manufacture of motor vehicle parts	Transportation
301	Building of ships and boats	Transportation
303	Manufacture of aircraft and spacecraft	Transportation
309	Manufacture of transport equipment n.e.c.	Transportation
310	Manufacture of furniture	Durables
321	Manufacture of jewellery	Durables
323	Manufacture of sports goods	Durables
324	Manufacture of games and toys	Durables
325	Manufacture of medical instruments	Durables
329	Other manufacturing	Durables
331	Repair of metal products	Durables
332	Installation of machinery	Durables
351	Electric power generation	Services
352	Manufacture of gas	Services
360	Water collection and supply	Services
370	Sewerage	Services
381	Waste collection	Services
382	Waste treatment	Services
383	Materials recovery	Services
411	Building project development	Construction
412	Construction of buildings	Construction
421	Construction of roads and railways	Construction
422	Construction of utility projects	Construction
429	Other civil engineering projects	Construction
431	Demolition and site preparation	Construction
432	Electrical and plumbing installation	Construction
433	Building completion	Construction
439	Other specialised construction	Construction
451	Sale of motor vehicles	Services
452	Maintenance of motor vehicles	Services
453	Sale of motor vehicle parts	Services
454	Sale of motorcycles	Services
461	Wholesale on a fee or contract basis	Services
462	Wholesale of agricultural materials	Services
463	Wholesale of food and beverages	Services
464	Wholesale of household goods	Services
465	Wholesale of communication equipment	Services
466	Wholesale of machinery and equipment	Services
467	Other specialised wholesale	Services
469	Non-specialised wholesale trade	Services
471	Retail sale in non-specialised stores	Services
472	Retail sale of food and beverages	Services
473	Retail sale of automotive fuel	Services
474	Retail sale of communication equipment	Services
475	Retail sale of household equipment	Services
476	Retail sale of cultural and recreation goods	Services
477	Retail sale of other goods	Services
478	Retail sale via stalls and markets	Services
479	Retail trade not in stores	Services
491	Passenger rail transport	Trptservices
493	Other passenger land transport	Trptservices
494	Freight transport by road	Trptservices
501	Sea and coastal passenger transport	Trptservices
502	Sea and coastal freight transport	Trptservices
503	Inland passenger transport	Trptservices
511	Passenger air transport	Trptservices
521	Warehousing and storage	Trptservices
522	Support activities for transportation	Trptservices
531	Postal activities	Trptservices
532	Other postal and courier activities	Trptservices
551	Hotels and similar accommodation	Services
552	Holiday accommodation	Services
553	Camping grounds	Services
559	Other accommodation	Services
561	Restaurants	Services
562	Event catering	Services
563	Beverage serving activities	Services
581	Publishing of books	ICT
591	Motion picture and television production	ICT
601	Radio broadcasting	ICT
602	Television programming	ICT
611	Wired telecommunications	ICT
612	Wireless telecommunications	ICT
619	Other telecommunications activities	ICT
620	Computer programming	ICT
631	Data processing and web portals	ICT
639	Other information services	ICT
641	Monetary intermediation	Services
642	Holding companies	Services
643	Trusts, funds	Services
649	Other financial service activities	Services
651	Insurance	Services
661	Activities auxiliary to financial services	Services
662	Activities auxiliary to insurance	Services
663	Fund management activities	Services
681	Buying and selling of own real estate	Services
682	Rental and operating of real estate	Services
683	Real estate on a fee basis	Services
691	Legal activities	ICT
692	Accounting and auditing	ICT
702	Management consultancy	ICT
711	Architectural activities	ICT
712	Technical testing and analysis	ICT
721	Research in natural sciences	ICT
731	Advertising	ICT
732	Market research	ICT
741	Specialised design activities	ICT
742	Photographic activities	ICT
743	Translation activities	ICT
749	Other professional activities	ICT
750	Veterinary activities	ICT
771	Rental of motor vehicles	ICT
772	Rental of personal goods	ICT
773	Rental of machinery	ICT
781	Employment placement agencies	ICT
782	Temporary employment agency	ICT
783	Other human resources provision	ICT
791	Travel agency activities	ICT
801	Private security activities	ICT
802	Security systems services	ICT
812	Cleaning activities	ICT
813	Landscape services	ICT
821	Office support activities	ICT
822	Call centres	ICT
823	Conventions and trade shows	ICT
829	Business support services n.e.c.	ICT
841	State administration	Services
842	Provision of community services	Services
843	Compulsory social security	Services
851	Pre-primary education	Services
852	Primary education	Services
853	Secondary education	Services
854	Higher education	Services
855	Other education	Services
861	Hospital activities	Services
862	Medical and dental practice	Services
869	Other human health activities	Services
871	Nursing care facilities	Services
872	Mental care facilities	Services
873	Elderly and disabled care facilities	Services
879	Other residential care activities	Services
881	Social work for elderly	Services
889	Other social work activities	Services
900	Arts and entertainment activities	Services
910	Libraries and museums	Services
920	Gambling and betting activities	Services
931	Sports activities	Services
932	Recreation activities	Services
941	Business organisations	Services
942	Trade unions	Services
949	Other membership organisations	Services
951	Repair of computers	Services
952	Repair of household goods	Services
960	Other personal service activities	Services
970	Domestic personnel	Services
990	Extraterritorial organisations	Services

Table 17: Senegal

IPUMS Code	IPUMS Description	Aggregate Sector
11	Non-perennial crops	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
23	Non-wood forest products	Agriculture
24	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	Meat processing	Nondurables
102	Fish processing	Nondurables
103	Fruit and vegetable processing	Nondurables
104	Vegetable and animal oils	Nondurables
105	Dairy products	Nondurables
106	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
152	Footwear manufacturing	Nondurables
161	Sawmilling and planing	Durables
162	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	Metal casting	Durables
251	Structural metal products	Durables
259	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	Machinery
291	Motor vehicles manufacturing	Transportation
292	Motor vehicle bodies and trailers	Transportation
293	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	Building construction	Construction
421	Road and railway construction	Construction
429	Civil engineering projects	Construction
430	Specialized construction activities	Construction
431	Demolition and site preparation	Construction
432	Electrical and plumbing installation	Construction
439	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
461	Wholesale on a fee basis	Services
462	Agricultural raw materials wholesale	Services
463	Food and beverage wholesale	Services
464	Household goods wholesale	Services
465	Machinery and equipment wholesale	Services
466	Specialized wholesale	Services
469	Non-specialized wholesale	Services
471	Retail in non-specialized stores	Services
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	Services
563	Beverage services	Services
580	Publishing activities	ICT
591	Motion picture activities	ICT
592	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	Architectural and engineering activities	ICT
719	Technical testing	ICT
721	Natural sciences R&D	ICT
722	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	Social security activities	Services
851	Pre-primary and 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 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
881	Social work for the elderly	Services
889	Other social work activities	Services
900	Creative, arts and entertainment activities	Services
910	Cultural activities	Services
931	Sports activities	Services
932	Amusement and recreation activities	Services
941	Business and professional organizations	Services
949	Other membership organizations	Services
951	Computer and communication repair	Services
952	Personal and household goods repair	Services
960	Other personal services	Services
970	Domestic personnel employment	Services
980	Activities of private households	Services
990	Activities of extraterritorial organizations	Services
998	Unknown	
999	NIU (not in universe)	

Table 18: Thailand

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

Table 19: Vietnam

IPUMS Code	IPUMS Description	Aggregate Sector
10	Agriculture, unspecified	Agriculture
11	Growing of annual plants	Agriculture
12	Growing of perennial plants	Agriculture
13	Growing industrial crops	Agriculture
14	Farming of animals	Agriculture
15	Mixed farming	Agriculture
16	Agricultural services	Agriculture
17	Hunting, trapping, related activities	Agriculture
20	Forestry, unspecified	Agriculture
21	Forestation	Agriculture
22	Logging	Agriculture
23	Gathering non-wood products	Agriculture
24	Forestry services	Agriculture
30	Fishing, unspecified	Agriculture
31	Fishing	Agriculture
32	Fish farming	Agriculture
50	Coal and lignite mining	Mining
51	Hard coal mining	Mining
52	Lignite mining	Mining
60	Petroleum and gas extraction	Mining
61	Crude petroleum extraction	Mining
62	Natural gas extraction	Mining
70	Metal ore mining, unspecified	Mining
71	Iron ore mining	Mining
72	Non-ferrous metal mining	Mining
73	Rare iron ore mining	Mining
80	Other mining and quarrying	Mining
81	Stone, sand, gravel, clay quarrying	Mining
89	Mining and quarrying, n.e.c.	Mining
90	Mining support services	Mining
91	Petroleum/gas mining support	Mining
99	Other mining support services	Mining
100	Food manufacturing, unspecified	Nondurables
101	Meat processing	Nondurables
102	Fish processing	Nondurables
103	Fruit and vegetable processing	Nondurables
104	Oils and fats manufacturing	Nondurables
105	Dairy product manufacturing	Nondurables
106	Starches manufacturing	Nondurables
107	Other food manufacturing	Nondurables
108	Animal feeds manufacturing	Nondurables
110	Beverage manufacturing	Nondurables
120	Tobacco products manufacturing	Nondurables
130	Textiles manufacturing, unspecified	Nondurables
131	Textile spinning and weaving	Nondurables
132	Other textiles manufacturing	Nondurables
140	Clothing manufacturing, unspecified	Nondurables
141	Clothing manufacturing (except fur)	Nondurables
142	Fur articles manufacturing	Nondurables
143	Knitwear manufacturing	Nondurables
150	Leather products manufacturing, unspecified	Nondurables
151	Leather processing and products	Nondurables
152	Footwear manufacturing	Nondurables
160	Wood products manufacturing, unspecified	Durables
161	Sawmilling and planing	Durables
162	Wood and straw products manufacturing	Durables
170	Paper products manufacturing	Nondurables
180	Printing and media reproduction	Nondurables
181	Printing services	Nondurables
182	Media reproduction	Nondurables
190	Coke and petroleum manufacturing, unspecified	Nondurables
191	Coke products manufacturing	Nondurables
192	Refined petroleum manufacturing	Nondurables
200	Chemical manufacturing, unspecified	Nondurables
201	Basic chemicals manufacturing	Nondurables
202	Other chemical products manufacturing	Nondurables
203	Man-made fibers manufacturing	Nondurables
210	Pharmaceuticals manufacturing	Nondurables
220	Rubber and plastics manufacturing, unspecified	Nondurables
221	Rubber products manufacturing	Nondurables
222	Plastics products manufacturing	Nondurables
230	Non-metallic mineral manufacturing, unspecified	Durables
231	Glass products manufacturing	Durables
239	Other non-metallic minerals manufacturing	Durables
240	Metals manufacturing, unspecified	Durables
241	Iron and steel manufacturing	Durables
242	Non-ferrous metals manufacturing	Durables
243	Metal casting	Durables
250	Metal products manufacturing, unspecified	Durables
251	Structural metal manufacturing	Durables
252	Weapons and ammunition manufacturing	Durables
259	Other metal products manufacturing	Durables
260	Electronics manufacturing, unspecified	Electronics
261	Electronic components manufacturing	Electronics
262	Computers manufacturing	Electronics
263	Communication equipment manufacturing	Electronics
264	Consumer electronics manufacturing	Electronics
265	Measuring instruments manufacturing	Electronics
266	Medical and electrotherapeutic equipment manufacturing	Electronics
267	Optical instruments manufacturing	Electronics
268	Magnetic and optical media manufacturing	Electronics
270	Electrical equipment manufacturing, unspecified	Electronics
271	Motors and generators manufacturing	Electronics
272	Batteries manufacturing	Electronics
273	Wiring devices manufacturing	Electronics
274	Electric lighting manufacturing	Electronics
275	Domestic appliances manufacturing	Electronics
279	Other electrical equipment manufacturing	Electronics
280	Machinery manufacturing, unspecified	Machinery
281	General purpose machinery manufacturing	Machinery
282	Special purpose machinery manufacturing	Machinery
290	Motor vehicle and trailers manufacturing, unspecified	Transportation
291	Motor vehicles manufacturing	Transportation
292	Motor vehicle bodies and trailers manufacturing	Transportation
293	Motor vehicle parts manufacturing	Transportation
300	Transport equipment manufacturing, unspecified	Transportation
301	Ship and boat building	Transportation
302	Railway and tramway locomotives manufacturing	Transportation
303	Aircraft and spacecraft manufacturing	Transportation
304	Military vehicles manufacturing	Transportation
309	Other transport equipment manufacturing	Transportation
310	Furniture manufacturing	Durables
320	Other manufacturing industries, unspecified	Durables
321	Jewelry manufacturing	Durables
322	Musical instruments manufacturing	Durables
323	Sporting goods manufacturing	Durables
324	Toys and games manufacturing	Durables
325	Medical and dental instruments manufacturing	Durables
329	Other manufacturing, n.e.c.	Durables
330	Equipment repair and installation, unspecified	Durables
331	Metal products and equipment repair	Durables
332	Industrial equipment installation	Durables
350	Electricity, gas, steam, and water distribution, unspecified	Services
351	Electricity generation and distribution	Services
352	Gas distribution	Services
353	Steam and water supply	Services
360	Water supply and sewage management	Services
370	Sewage processing	Services
380	Waste management, unspecified	Services
381	Waste collection	Services
382	Waste treatment	Services
383	Waste recycling	Services
390	Pollution control and waste management	Services
410	Construction, unspecified	Construction
420	Civil engineering, unspecified	Construction
421	Road and railway construction	Construction
422	Utility project construction	Construction
429	Other civil engineering	Construction
430	Specialized construction, unspecified	Construction
431	Site preparation	Construction
432	Installation of electrical and water supply system	Construction
433	Building completion	Construction
439	Other specialized constructions	Construction
450	Sale and repair of motor vehicles, unspecified	Services
451	Sale of motor vehicles	Services
452	Maintenance and repair of motor vehicles	Services
453	Sale of motor vehicle parts	Services
454	Sale, maintenance and repair of motorcycles	Services
460	Wholesale trade, unspecified	Services
461	Agents, intermediaries, auctioning	Services
462	Wholesale of agricultural raw materials	Services
463	Wholesale of food, beverages and tobacco	Services
464	Wholesale of household goods	Services
465	Wholesale of machinery and equipment	Services
466	Other specialized wholesale trade	Services
469	General wholesale trade	Services
470	Retail trade, unspecified	Services
471	Retail trade in general stores	Services
472	Retail sale of food, beverages and tobacco	Services
473	Retail sale of fuel	Services
474	Retail sale of information and communication equipment	Services
475	Retail sale of household goods	Services
476	Retail sale of cultural and entertainment goods	Services
477	Retail sale of other goods	Services
478	Retail sale in markets and mobile retailers	Services
479	Other retail sale, n.e.c.	Services
490	Transport via railway, road and pipeline, unspecified	Trptservices
491	Transport via railway	Trptservices
492	Transport by buses	Trptservices
493	Other land transport	Trptservices
494	Pipeline transport	Trptservices
500	Water transport, unspecified	Trptservices
501	Sea and coastal water transport	Trptservices
502	Inland water transport	Trptservices
510	Air transport, unspecified	Trptservices
511	Air passenger transport	Trptservices
512	Air cargo transport	Trptservices
520	Storage and transport supporting activities	Trptservices
521	Storage and warehousing	Trptservices
522	Transport supporting service activities	Trptservices
530	Post and courier activities, unspecified	Trptservices
531	Post activities	Trptservices
532	Courier activities	Trptservices
550	Accommodation services, unspecified	Services
551	Short-stay accommodation	Services
559	Other accommodation	Services
560	Food services	Services
561	Restaurants and mobile catering	Services
562	Irregular catering services	Services
563	Beverage services	Services
581	Publishing of books, periodicals and other publishing	ICT
582	Production software	ICT
590	Cinematographic, TV production, recording and music production, unspecified	ICT
591	Cinematographic and TV production	ICT
592	Recording and music production	ICT
600	Radio and TV broadcasting, unspecified	ICT
601	Radio broadcasting	ICT
602	TV activities and provision of subscriber programs	ICT
610	Telecommunication, unspecified	ICT
611	Wired telecommunication	ICT
612	Wireless telecommunication	ICT
613	Satellite telecommunication	ICT
619	Other telecommunication	ICT
620	Computer programming, consultancy and related activities	ICT
630	Information service activities, unspecified	ICT
631	Data processing and related activities	ICT
632	Other information services	ICT
640	Financial intermediation, unspecified	Services
641	Monetary intermediation	Services
642	Property holding company activities	Services
643	Credit activities	Services
649	Other financial intermediation	Services
650	Insurance and social insurance, unspecified	Services
651	Insurance	Services
652	Reinsurance	Services
653	Social insurance	Services
661	Auxiliary to financial intermediation	Services
662	Auxiliary to insurance and social insurance	Services
663	Fund management activities	Services
680	Real estate activities, unspecified	Services
681	Real estate with owned or leased property	Services
682	Real estate consultant, brokers, property auction	Services
690	Legal, accounting and auditing activities, unspecified	ICT
691	Legal activities	ICT
692	Accounting, auditing and tax consultancy	ICT
701	Activities in office buildings	ICT
702	Management consultancy	ICT
710	Architectural activities, technical testing, unspecified	ICT
711	Architectural and technical consultancy	ICT
712	Technical testing and analysis	ICT
720	Scientific research and development, unspecified	ICT
721	R&D on natural sciences and technologies	ICT
722	R&D on social sciences and humanities	ICT
730	Advertising and market research, unspecified	ICT
731	Advertising	ICT
732	Market research and public opinion surveying	ICT
740	Other technological and scientific activities, unspecified	ICT
741	Specialized design activities	ICT
742	Photographic activities	ICT
749	Other technological and scientific activities, n.e.c.	ICT
750	Veterinary activities	ICT
771	Renting of motor vehicles	ICT
772	Renting of personal and household goods	ICT
773	Renting of equipment and machinery	ICT
774	Renting of non-financial intangible assets	ICT
780	Labor and employment services, unspecified	ICT
781	Employment agency activities	ICT
782	Temporary labor supply	ICT
783	Labor supply and management	ICT
790	Travel agencies and tour operators, unspecified	ICT
791	Travel agencies and tour operators	ICT
792	Tourism promotion and support services	ICT
800	Investigation and security activities, unspecified	ICT
801	Personal security activities	ICT
802	Security system services	ICT
803	Investigation services	ICT
810	Building and landscape services	ICT
811	General supporting services	ICT
812	Sanitary services	ICT
813	Botanical and landscape services	ICT
820	Administrative activities, unspecified	ICT
821	Administrative and office support activities	ICT
822	Telephone calling and related services	ICT
823	Trade promotion organizing activities	ICT
829	Other business support activities, n.e.c.	ICT
840	Governmental management, defense, unspecified	Services
841	Governmental management and socio-economic policy	Services
842	Activities serving all countries	Services
843	Mandatory social insurance	Services
850	Education, unspecified	Services
851	Pre-school education	Services
852	Primary education	Services
853	Secondary education	Services
854	Higher education	Services
855	Other education	Services
856	Supporting education services	Services
860	Human health activities, unspecified	Services
861	Hospital activities	Services
862	Medical and dental practice activities	Services
869	Other human health activities	Services
870	Nursing and care activities, unspecified	Services
871	Nursing activities	Services
872	Care for disabled and drug addicted persons	Services
873	Care for veterans and elderly persons	Services
879	Other care activities	Services
881	Non-home-caring activities for elderly persons	Services
889	Other non-home-caring activities	Services
900	Art and recreational activities	Services
910	Library, archives, museums, cultural activities	Services
920	Lottery, betting and gambling activities	Services
930	Sport, recreational and entertainment activities, unspecified	Services
931	Sport activities	Services
932	Other recreational activities	Services
940	Activities of unions and organizations, unspecified	Services
941	Business and occupational unions	Services
942	Trade unions	Services
949	Other unions	Services
950	Repair of computers and personal goods, unspecified	Services
951	Repair of computers and communication equipment	Services
952	Repair of personal and household goods	Services
960	Other personal service activities, unspecified	Services
961	Sauna, massage and recreation (excluding sport)	Services
962	Laundry and dry-cleaning services	Services
963	Other personal services, n.e.c.	Services
970	Activities of domestic hired laborers	Services
980	Household activities, unspecified	Services
981	Household activities producing goods	Services
982	Household activities producing services	Services
990	Extra-territorial organizations and bodies	Services
998	Unknown	Services
999	NIU (not in the universe)	

Table 20: South Africa

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

Table 21: Zambia

IPUMS Code	IPUMS Description	Aggregate Sector
11	Growing of non-perennial crops	Agriculture
12	Growing of perennial crops	Agriculture
13	Plant propagation	Agriculture
14	Animal production	Agriculture
15	Mixed farming	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	Agriculture
24	Support services to forestry	Agriculture
31	Fishing	Agriculture
32	Aquaculture	Agriculture
51	Mining of hard coal	Mining
61	Extraction of crude petroleum	Mining
62	Extraction of natural gas	Mining
71	Mining of iron ores	Mining
72	Mining of non-ferrous metals	Mining
81	Quarrying stone, sand, clay	Mining
89	Mining, quarrying n.e.c.	Mining
91	Support activities for petroleum	Mining
99	Support activities, mining n.e.c.	Mining
101	Processing & preserving of meat	Nondurables
102	Processing of fish, crustaceans	Nondurables
103	Processing of fruits, vegetables	Nondurables
104	Manufacture of oils & fats	Nondurables
105	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	Nondurables
131	Spinning, weaving, finishing textiles	Nondurables
139	Manufacture of other textiles	Nondurables
140	Manufacturing of wearing apparel	Nondurables
143	Manufacture of knitted apparel	Nondurables
151	Tanning and dressing of leather	Nondurables
152	Manufacture of footwear	Nondurables
161	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	Manufacture of coke & petroleum	Nondurables
201	Manufacture of basic chemicals	Nondurables
202	Manufacture of other chemicals	Nondurables
209	Manufacture of chemical products n.e.c.	Nondurables
210	Manufacture of pharmaceuticals	Nondurables
221	Manufacture of rubber products	Nondurables
222	Manufacture of plastic products	Nondurables
231	Manufacture of glass products	Durables
239	Manufacture of non-metallic products n.e.c.	Durables
241	Manufacture of iron and steel	Durables
249	Manufacture of basic metals n.e.c.	Durables
243	Casting of metals	Durables
251	Manufacture of metal products	Durables
252	Manufacture of weapons & ammunition	Durables
259	Manufacture of other metal products	Durables
260	Manufacture of electronics & opticals	Electronics
271	Manufacture of electric motors	Electronics
273	Manufacture of wiring devices	Electronics
274	Manufacture of lighting equipment	Electronics
275	Manufacture of domestic appliances	Electronics
279	Manufacture of other electrical equipment	Electronics
280	Manufacture of machinery	Machinery
291	Manufacture of motor vehicles	Transportation
293	Manufacture of vehicle parts	Transportation
300	Manufacture of transport equipment	Transportation
310	Manufacture of furniture	Durables
321	Manufacture of jewellery & articles	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	Steam & air conditioning supply	Services
360	Water collection & supply	Services
370	Sewerage	Services
381	Waste collection	Services
382	Waste treatment & disposal	Services
389	Waste recovery activities n.e.c.	Services
390	Remediation & waste management	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	Demolition & site preparation	Construction
432	Electrical, plumbing installation	Construction
433	Building completion & finishing	Construction
439	Other specialized construction	Construction
451	Sale of motor vehicles	Services
452	Maintenance of motor vehicles	Services
453	Sale of vehicle parts	Services
454	Sale & repair of motorcycles	Services
461	Wholesale on a fee basis	Services
462	Wholesale of agricultural 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	Non-specialized wholesale trade	Services
471	Retail sale in non-specialized stores	Services
472	Retail sale of food & tobacco	Services
473	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	Services
478	Retail sale via stalls & markets	Services
479	Retail trade not in stores	Services
491	Transport via railways	Trptservices
492	Other land transport	Trptservices
500	Water transport	Trptservices
511	Passenger air transport	Trptservices
512	Freight air transport	Trptservices
521	Warehousing & storage	Trptservices
522	Support activities for transportation	Trptservices
531	Postal activities	Trptservices
532	Courier activities	Trptservices
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	Sound recording & publishing	ICT
601	Radio broadcasting	ICT
602	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	Pension funding	Services
660	Activities auxiliary to finance	Services
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		
721	R&D on natural sciences	ICT
722	R&D on social sciences	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	Temporary employment agencies	ICT
783	Other human resources activities	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	Organization of conventions	ICT
829	Business support activities n.e.c.	ICT
841	State administration & policy	Services
842	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	Residential nursing care	Services
872	Residential care for mental health	Services
873	Residential care for elderly	Services
879	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	
999	NIU (not in universe)	