ECON 753 Problem Set 1

Jesús Lara Jáuregui

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Problem 1

Part A

Replication of Table A1

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library(knitr)
kable(A1)
```

Category	I-O Industry	Weights
Bioenergy	Agriculture, Hunting, Forestry and Fishing	50.0
Bioenergy	Coke, Refined Petroleum and Nuclear Fuel	12.5
Bioenergy	Construction	25.0
Bioenergy	Education	12.5
Solar	Basic Metals and Fabricated Metal	17.5
Solar	Electrical and Optical Equipment	35.0
Solar	Construction	30.0
Solar	Education	17.5
Wind	Rubber and Plastics	12.0
Wind	Basic Metals and Fabricated Metal	12.0
Wind	Electrical and Optical Equipment	43.0
Wind	Construction	26.0
Wind	Education	7.0
Geothermal	Mining and Quarrying	15.0
Geothermal	Electrical and Optical Equipment	10.0
Geothermal	Construction	45.0
Geothermal	Education	30.0
Hydro	Other Non-Metallic Mineral	18.2
Hydro	Electrical and Optical Equipment	21.0
Hydro	Construction	18.2
Hydro	Education	42.9
Weatherization and Building Retrofits	Construction	100.0
Industrial Energy Efficiency	Electrical and Optical Equipment	50.0
Industrial Energy Efficiency	Construction	20.0
Industrial Energy Efficiency	Education	30.0
Grid Upgrades	Electrical and Optical Equipment	75.0
Grid Upgrades	Construction	25.0
Coal	Mining and Quarrying	50.0
Coal	Chemicals and Chemical Products	50.0
Oil and Gas	Mining and Quarrying	50.0
Oil and Gas	Coke, Refined Petroleum and Nuclear Fuel	50.0

Category	I-O Industry	Weights
Renewable Energy	Bioenergy	20.0
Renewable Energy	Solar	20.0
Renewable Energy	Wind	20.0
Renewable Energy	Geothermal	20.0
Renewable Energy	Hydro	20.0
Energy Efficiency	Weatherization and Building Retrofits	50.0
Energy Efficiency	Industrial Energy Efficiency	25.0
Energy Efficiency	Grid Upgrades	25.0
Fossil Fuel	Coal	50.0
Fossil Fuel	Oil and Gas	50.0

Replication of Table 10

```
library(knitr)
kable(T10)
```

energy_names	Direct Jobs	Indirect Jobs	Direct + Indirect Jobs
Bioenergy	562.58296	61.18570	623.7687
Solar	98.50743	97.50735	196.0148
Wind	75.10361	117.85742	192.9610
Geothermal	145.48118	79.51790	224.9991
Hydro	144.78122	76.14726	220.9285
Weighted Average for Renewables	205.29128	86.44313	291.7344
Weatherization	159.11415	121.08790	280.2021
Industrial Energy Efficiency	105.51909	88.12674	193.6458
Smart Grids	58.69619	115.24087	173.9371
Weighted Average for Efficiency	120.61090	111.38585	231.9967
Coals	49.47604	87.70103	137.1771
Oil and Gas	34.24322	86.81066	121.0539
Weighted Average for Fossil Fuels	41.85963	87.25585	129.1155

Replication of Table 11

```
library(knitr)
kable(T11_4)
```

Source	Jobs per million USD
Renewable Energy	291.7344
Energy Efficiency	231.9967
Fossil Fuels	129.1155
Clean Energy Total	261.8656
Clean Energy relative to Fossil Fuels	102.8150

Part B

Replication of Table 10 with alternative weights at the subsectoral level

```
library(knitr)
kable(A1_T10)
```

energy_names	Direct Jobs	Indirect Jobs	Direct + Indirect Jobs
Bioenergy	562.58296	61.18570	623.7687
Solar	98.50743	97.50735	196.0148
Wind	75.10361	117.85742	192.9610
Geothermal	145.48118	79.51790	224.9991
Hydro	144.78122	76.14726	220.9285
Weighted Average for Renewables	205.29128	86.44313	291.7344
Weatherization	159.11415	121.08790	280.2021
Industrial Energy Efficiency	105.51909	88.12674	193.6458
Smart Grids	58.69619	115.24087	173.9371
Weighted Average for Efficiency	120.61090	111.38585	231.9967
Coals	49.47604	87.70103	137.1771
Oil and Gas	34.24322	86.81066	121.0539
Weighted Average for Fossil Fuels	41.85963	87.25585	129.1155

Replication of Table 10 with alternative weights at the subsectoral level

```
library(knitr)
kable(head(A1_T11_4))
```

Source	Jobs per million USD
Renewable Energy	291.7344
Energy Efficiency	231.9967
Fossil Fuels	129.1155
Clean Energy Total	261.8656
Clean Energy relative to Fossil Fuels	102.8150

Now with different weights at the sectoral level

```
library(knitr)
kable(head(A2_T11_4))
```

Source	Jobs per million USD
Renewable Energy	291.7344
Energy Efficiency	231.9967
Fossil Fuels	129.1155
Clean Energy Total	261.8656
Clean Energy relative to Fossil Fuels	102.8150

Poblem 2

1 Replication of figure 2 RR

2. Show the prevalence of the four public-debt categories for the sample of countries over time.Show the real GDP growth rate for the sample of countries over time. Discuss any patterns thatyou observe.

```
library(knitr)
kable(prev_1)
```

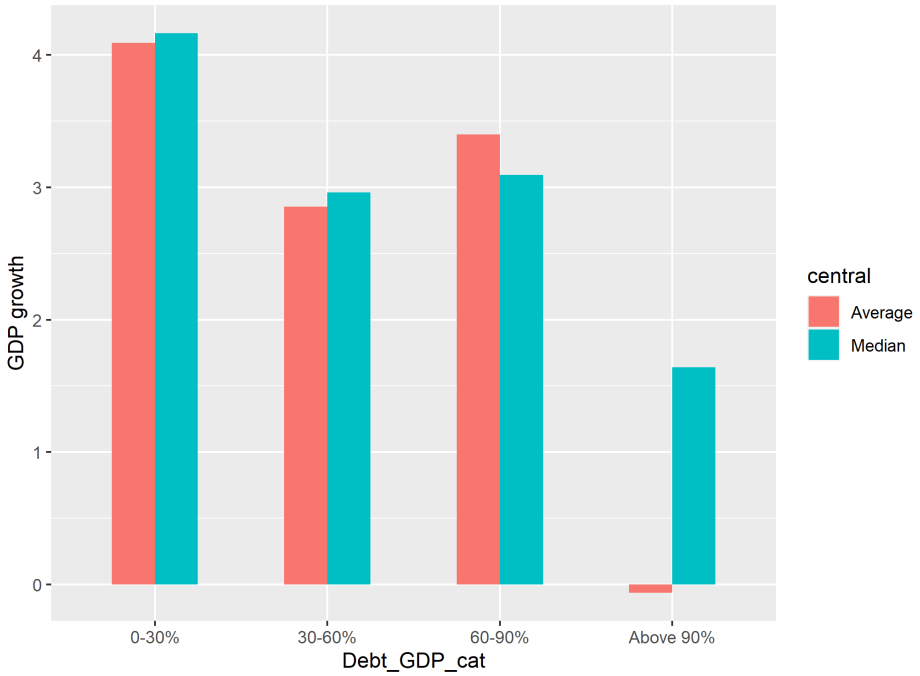

Figure 1: Figure 2 RR

Country	0-30%	30-60%	60-90%	Above 90%
Australia	37	13	9	5
Austria	34	27	1	0
Belgium	0	17	21	25
Canada	3	42	14	5
Denmark	23	16	17	0
Finland	44	16	4	0
France	24	20	10	0
Germany	48	11	0	0
Greece	13	5	3	19
Ireland	10	14	32	7
Italy	26	6	17	10
Japan	22	17	4	11
Netherlands	17	34	2	0
New Zealand	9	33	17	5
Norway	51	12	1	0
Portugal	42	9	7	0
Spain	5	36	1	0
Sweden	18	35	11	0
UK	0	39	6	19
US	0	37	23	4

```
library(knitr)
kable(prev_2)
```

0-30%	30-60%	60-90%	Above 90%
426	439	200	110

Prevalence of Real GDP Growth

```
library(knitr)
kable(prevGDP)
```

Country	1946-1950	1951-1960	1961-1970	1971-1980	1981-1990	1991-2000	2000-2010
Sweden	6.1217601	3.620328	5.274890	1.967190	2.203565	2.026641	1.6255954
UK	1.1371502	2.670354	2.832633	1.984710	2.733149	2.547979	1.5954352
US	0.1576796	3.547241	4.215048	3.209143	3.266144	3.411775	1.6148628

3. Replication of figures 1, 2 and 4 of Herndon et al.

Figure 1 Herndon

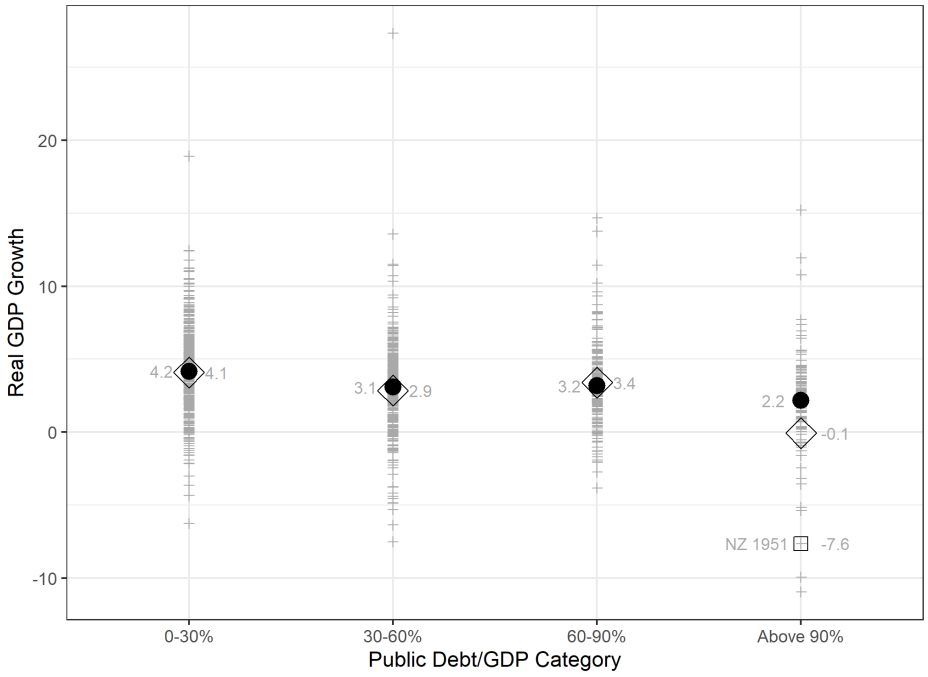

Figure 2: Figure 1 Herndon et al.

Figure 2 Herndon

Figure 4 Herndon

Reorganization in a meaningful way

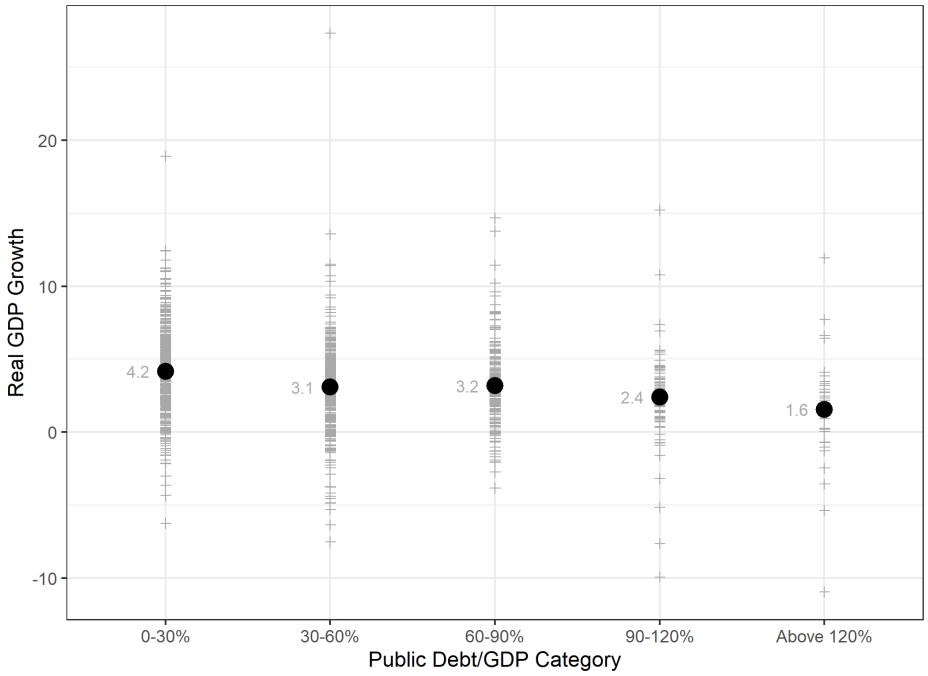

Figure 3: Figure 2 Herndon et al.

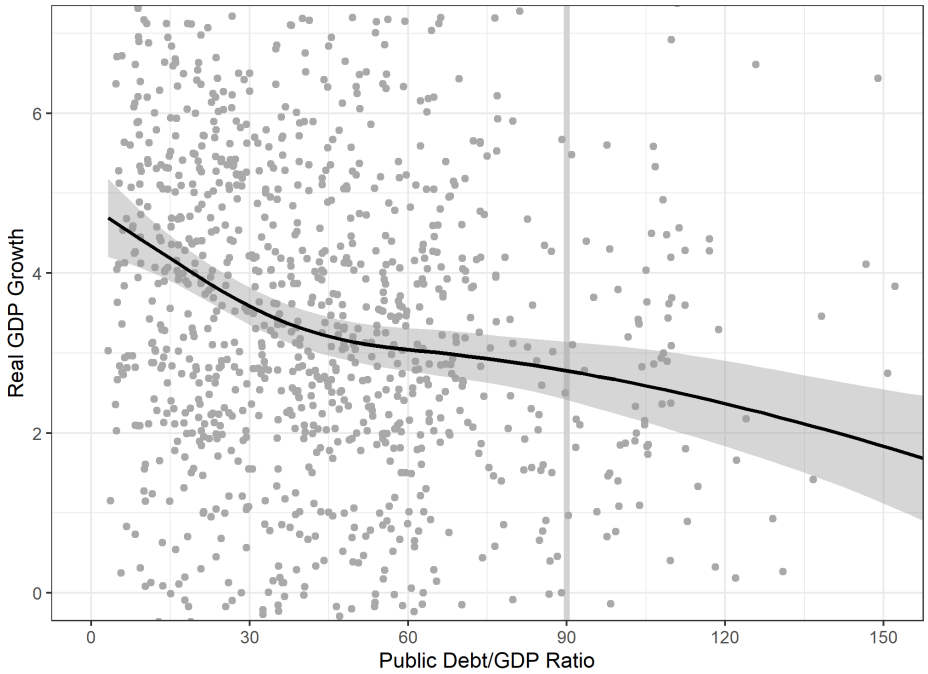

Figure 4: Figure 4 Herndon et al.

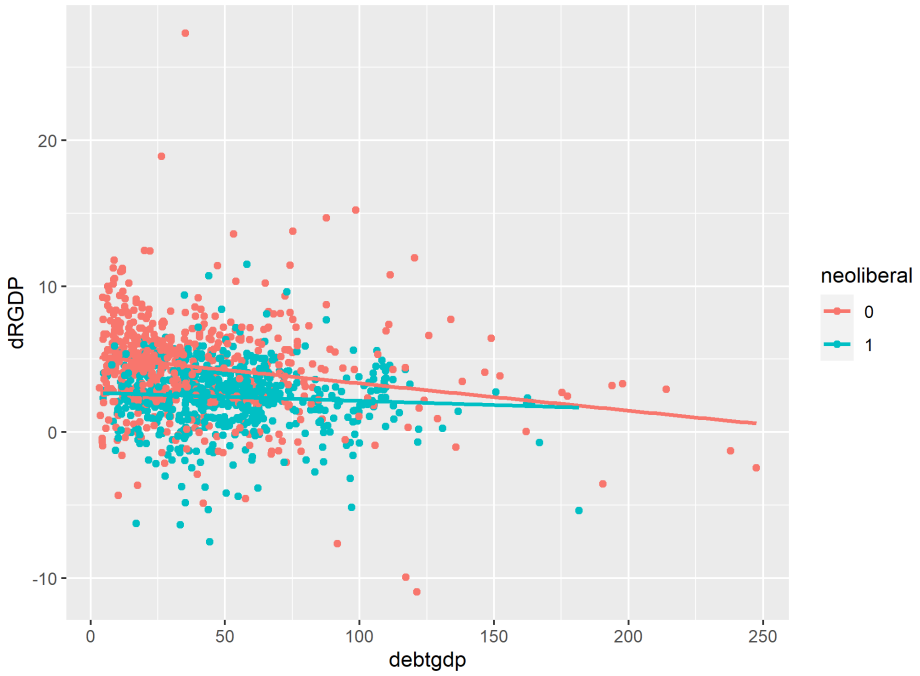

Figure 5: Before and After 1979

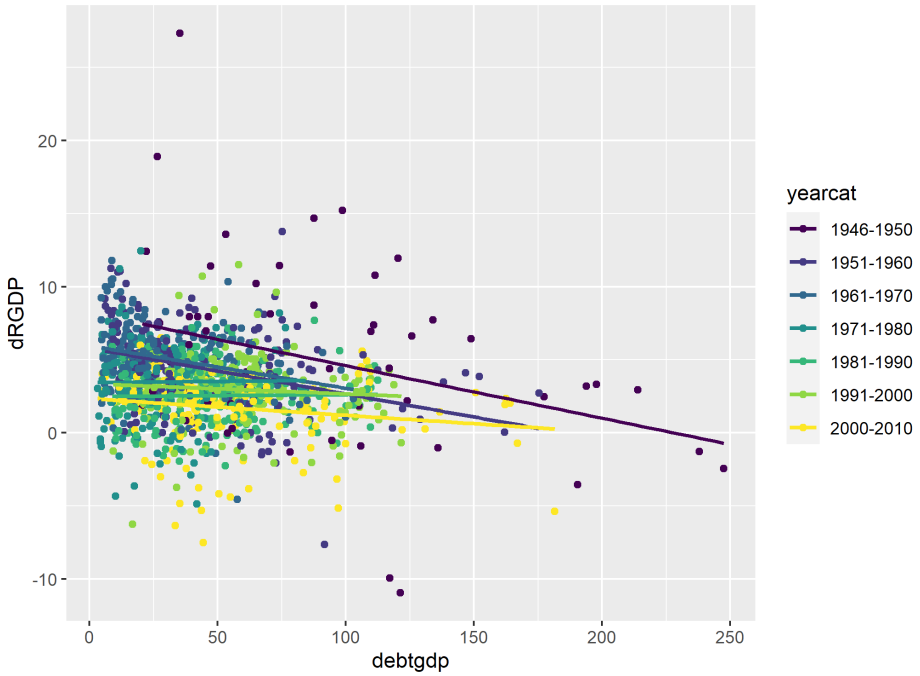

Figure 6: Before and After 1979