International preferences for income distribution

Adrien Fabre

Paris School of Economics

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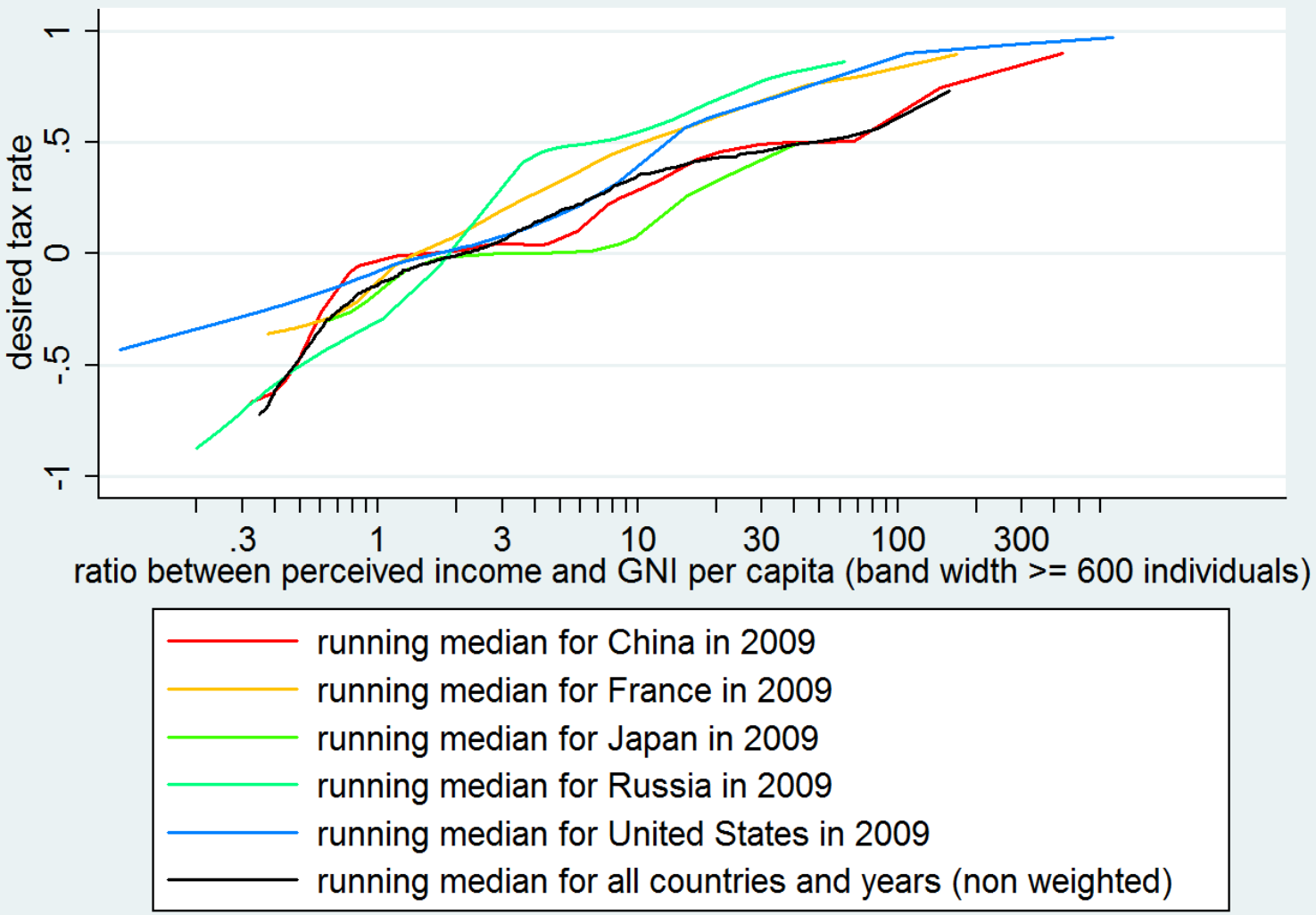

desired tax rate
-1
-.5
0
.5
1
.3
1
3
10
30
100
300
ratio between perceived income and GNI per capita (band width >= 600 individuals)
running median for China in 2009
running median for France in 2009
running median for Japan in 2009
running median for Russia in 2009
running median for United States in 2009
running median for all countries and years (non weighted)

$$
\begin{aligned}
sensitivity &= log_{10}\left(\frac{perceived\ wage\ ratio}{desired\ wage\ ratio}\right) \\
&= log_{10}\left(\frac{perceived\ high\ wage}{desired\ high\ wage} \Big/ \frac{perceived\ low\ wage}{desired\ low\ wage}\right)
\end{aligned}
$$

Regressor	Coefficient	Size	Variance compone
constant	*.112*	*50570 observations*	*R^2: .128*
log family income	-.032***	-.010	.02
left-right scale	-.030***	-.089	**.07**
female	.024***	.073	.01
age	.005***	.242	.01
age^2	-.00006***	-.313	.01
highest degree	-.008***	-.036	.01
unemployed	.020***	.059	.00
self-employed	-.014***	-.041	.02
ave (reference: 1987)			**.13**
1992	.105***	.317	
1999	.162***	.488	
2009	.226***	.680	
Countries			**.67**
Profession			.02

$$size_X = \begin{cases} \frac{\sigma_X}{\sigma_P} \cdot \mathbf{E}\left[\frac{\partial P}{\partial X}\right] & \text{if } X \text{ is not binary} \\ \frac{1}{\sigma_P} \cdot \mathbf{E}\left[\frac{\partial P}{\partial X}\right] & \text{if } X \text{ is a dummy} \end{cases}$$

$$\begin{aligned} P(X, \mathbf{Y}) &= a + b \cdot X + c \cdot X^2 + d \cdot \mathbf{Y} + u \\ P(\bar{X} + \sigma_X, \mathbf{Y}) - P(\bar{X}, \mathbf{Y}) &= b \cdot \sigma_X + c \cdot (\sigma_X^2 + 2 \cdot \sigma_X \cdot \bar{X}) + v \end{aligned}$$

$$size_{X^2} = \frac{\sigma_X^2 + 2 \cdot \sigma_X \cdot \bar{X}}{\sigma_P} \cdot c$$

Author(s)	Data	Model	Dependent variable
Barnes	ISSP-06	OLS	level of tax
		logit	progressivity
Guillaud	ISSP-99	ologit	reduce income diff.
Alesina & La Ferrara	GSS	oprobit	reduce income diff.
Alesina & Giuliano	GSS	OLS	for redistribution
Fong	Gallup	oprobit	for redistribution
me	ISSP-SI	OLS	sensitivity

Variable	Sign	Size	Dependant variable	Significance
Income	+	.35	progressivity	***
Income^2	−	-.57	progressivity	***
Income	+	.28	level of tax	***
Income^2	−	-.41	level of tax	***
Income	−	-.11	for redistribution	***
Income quintile Q1	+	.52	reduce income differences	***
Income quintile Q2	+	.47	reduce income differences	***
Income quintile Q3	+	.39	reduce income differences	***
Income quintile Q4	+	.36	reduce income differences	***
log(income)	−	-.01	sensitivity	***

Table : Correlations between preferences for distribution and being a woman

Sign	Size	Dependant variable	Significance
−	-.06	level of tax	***
+	.36	progressivity	**
+	.18	reduce income differences	***
+	.14	reduce income differences	**
+	.02	for redistribution	***
+	.26	for redistribution	***
+	.07	sensitivity	***
+		desired ratio low/high wage	
+		Rawlsian	

Variable	Sign	Size	Dependant variable	Significance
Age	+	.11	progressivity	***
Age	+	.09	level of tax	***
Age	+	.32	progressivity	***
Age^2	−	-.27	progressivity	***
Age	+	.24	sensitivity	***
Age^2	−	-.31	sensitivity	***
Age	−	-.04	reduce income differences	**
Age	+	.08	for redistribution	**
Age^2	−	-.18	for redistribution	***
Age	+	.19	reduce income differences	**
Age^2	−	-.21	reduce income differences	**

Table : Correlations between preferences for distribution and education

Variable	Sign	Size	Dependant variable	Significanc
Education	+	.09	level of tax	***
Education	−	-.02	progressivity	**
ducation > high school	−	-.13	for redistribution	***
Highest degree	−	-.04	sensitivity	***
Education < 12 years	+	.30	reduce income differences	**
Education > 16 years	−	-.18	reduce income differences	**
Education >= college	−	-.2	for redistribution	***
Education	−		equal sacrifice	

Variable	Sign	Size	Dependant variable	Significance
Public sector	+	.12	level of tax	***
Public sector	+	.08	progressivity	***
Public sector	+	.04	reduce income differences	***
Self-employed	−	-.06	level of tax	**
Self-employed	−	-.07	progressivity	***
Self-employed	−	-.21	reduce income differences	**
Self-employed	−	-.04	sensitivity	***
Executive	−	-.10	sensitivity	***
ntermediate profession	+	.03	sensitivity	**
Service worker	+	.09	sensitivity	***
Machine operator	+	.15	sensitivity	***

Table : Correlations between preferences for distribution and work status

Variable	Sign	Size	Dependant variable	Significance
Student	+	.32	level of tax	***
Student	−	-.06	progressivity	**
Student	−	-.02	sensitivity	***
Retired	−	-.07	progressivity	***
Not in labor force	+	.08	sensitivity	***
Unemployed	+	.06	sensitivity	***

Table : Correlations between preferences for distribution and race (USA)

Variable	Sign	Size	Dependant variable	Significance
Black	+	.37	reduce income differences	**
Black	+	.5	for redistribution	***
White	−	-.18	for redistribution	***

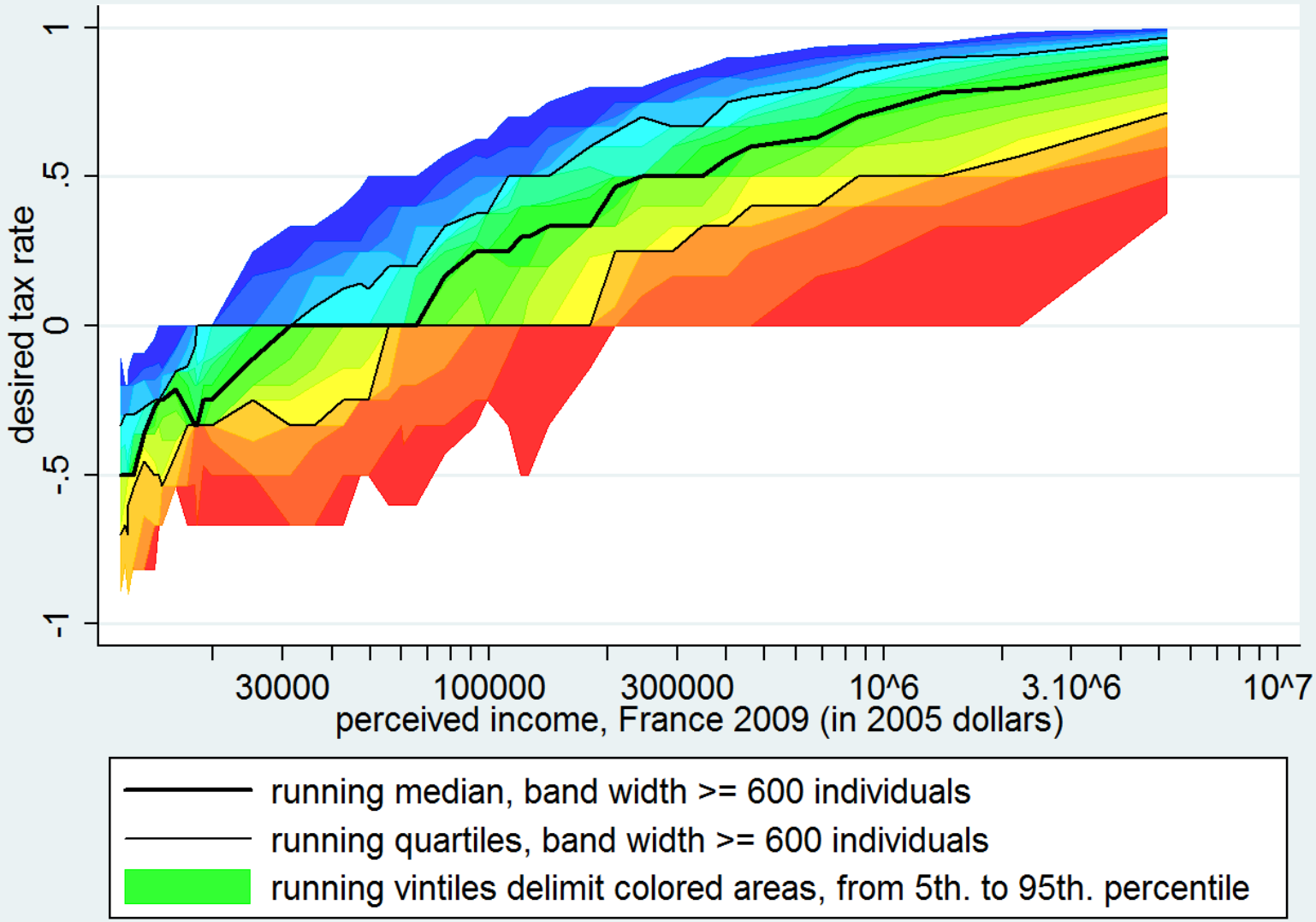
Table : Correlations between preferences for distribution and political leaning represented by a **left-right scale**

Sign	Size	Dependant variable	Significance
–	-.2	for redistribution	***
–	-.12	desired increase of minimum wage	***
–	-.10	desired RMI	***
–	-.09	sensitivity	***
–	-.08	strict progressivity	***
–	-.05	desired wage ratio	***
–	-.05	level of tax	**
–	-.04	sensitivity	
–	-.004	desired wage ratio	

Table : Correlations with diverse characteristics

Variable	Sign	Size	Dependant variable	Significanc
Union membership	+	.17	for redistribution	***
Religiosity	−	-.03	reduce income differences	***
nemployed in last 5y	+	.14	reduce income differences	**
Social trust	+	.12	level of tax	***
Social trust	−	.0006	progressivity	**
progressivity	+	.38	level of tax	***
level of tax	+	.30	progressivity	***
Prob(7-10 decile)	−	-.01	reduce income differences	**
Class popular	+	.27	reduce income differences	***
Class superior	−	-.25	reduce income differences	***

1. preservation of incomes' ordering: a profession j' absent from the survey and which is offers the same remuneration as another profession j included in the survey would exhibit the same answers as j: $z_{j'} = z_j \Longrightarrow {z_{j'}}^+ = {z_j}^+$;
2. exclusive dependency of z^+ to z (but not to the profession)
3. agreement with the idea that fiscal policy is the adequate instrument in order to redistribute income;
4. absence of behavioral response
5. interpretation as a desire for *additional rates*?


desired tax rate
1
.5
0
-.5
-1
30000
100000
300000
10^6
3.10^6
10^7
perceived income, France 2009 (in 2005 dollars)
running median, band width >= 600 individuals
running quartiles, band width >= 600 individuals
running vintiles delimit colored areas, from 5th. to 95th. percentile

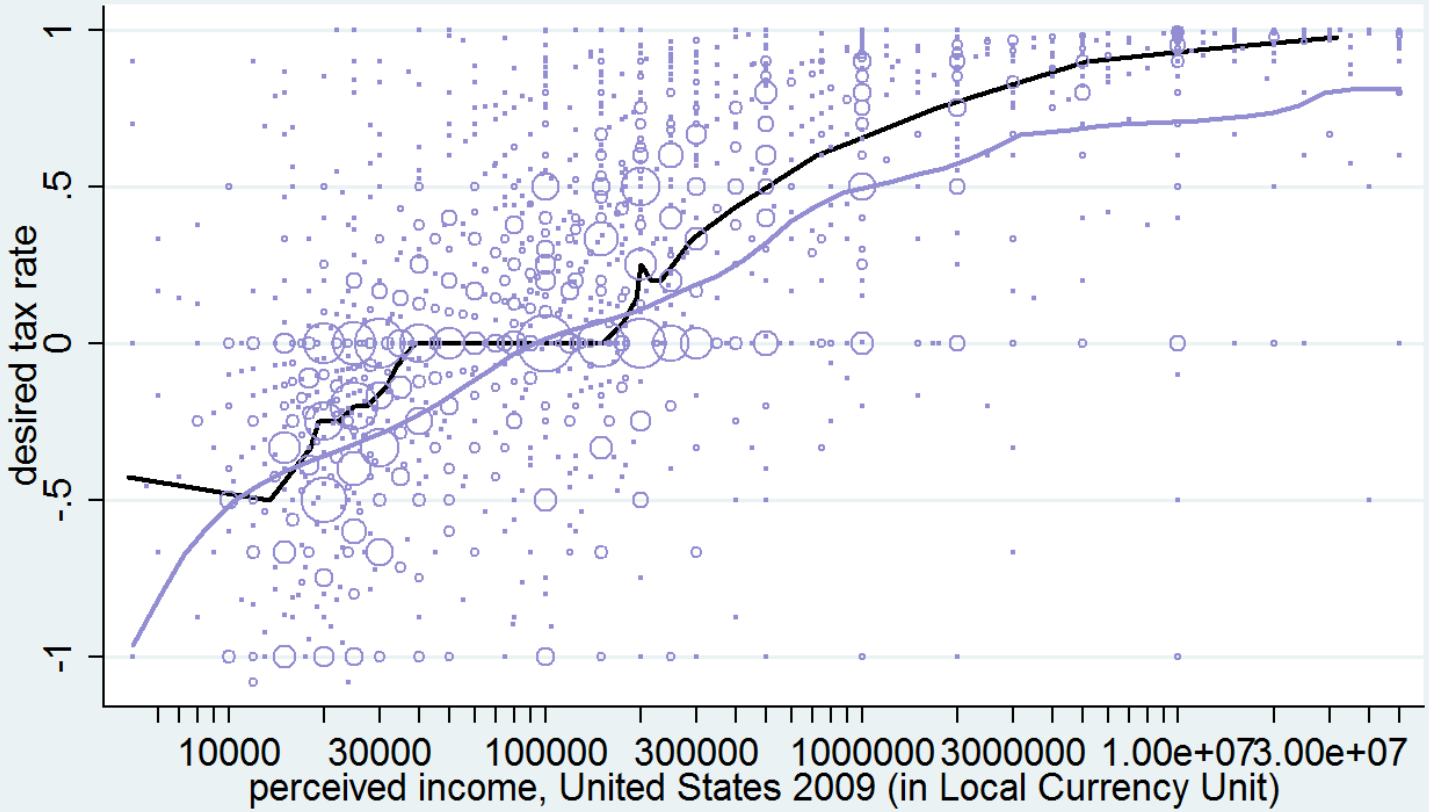

desired tax rate
1
.5
0
-.5
-1
10000
30000
100000
300000
1000000
3000000
1.00e+07
3.00e+07
perceived income, United States 2009 (in Local Currency Unit)
running median, band width >= 600 individuals
running average (bw: .21, x range: p2-99.9, tax capped at -4, epan.)
scatter (if tax > -1.)

Figure : Running median desired tax rates for different working status, France 2009 (data: ISSP)

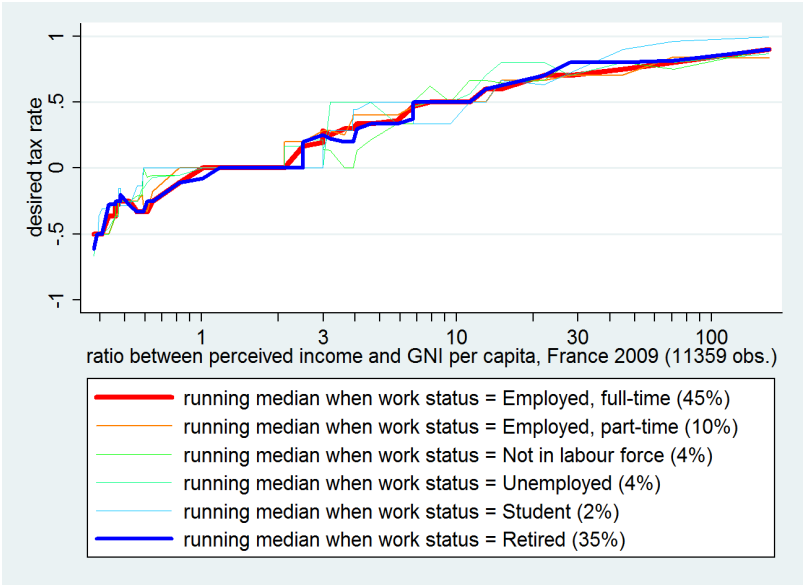


Figure : *Smooth* running median desired tax rates for different working status, France 2009 (data: ISSP)

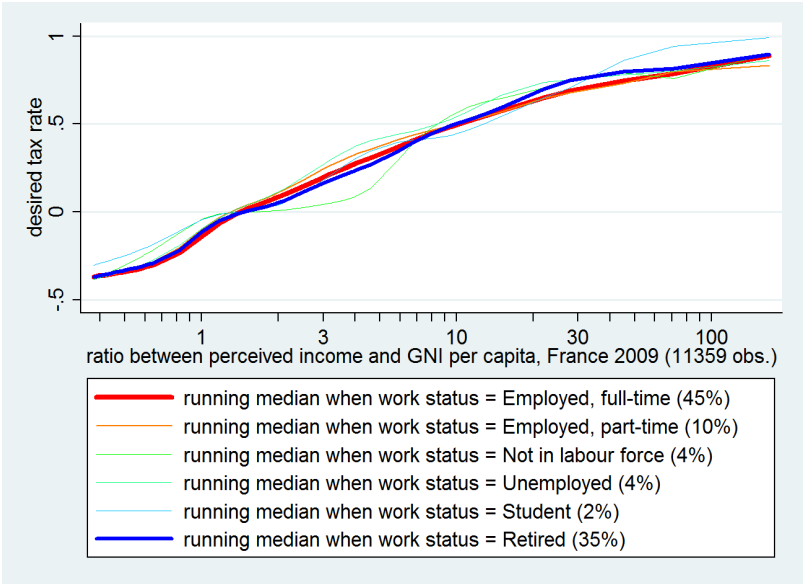


Figure : Running median desired tax rates for different incomes, France 2009 (data: ISSP)

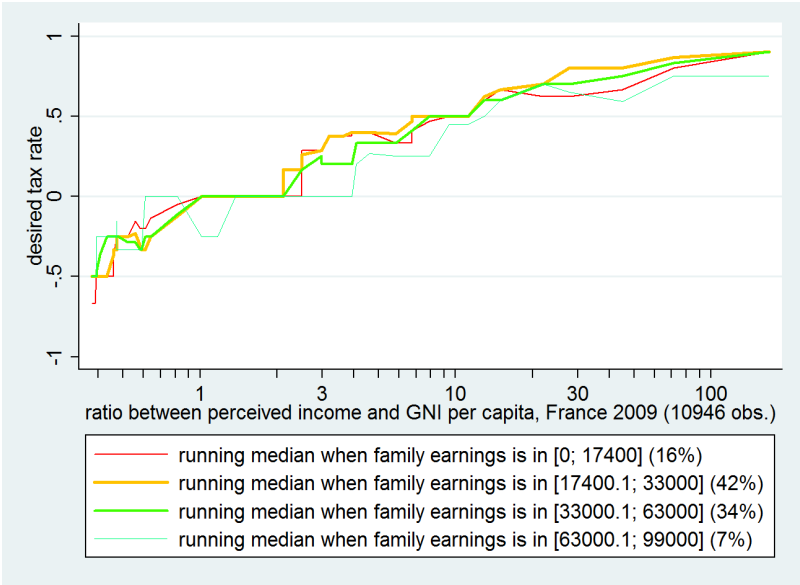


Figure : Running median desired tax rates for different political leanings, France 2009

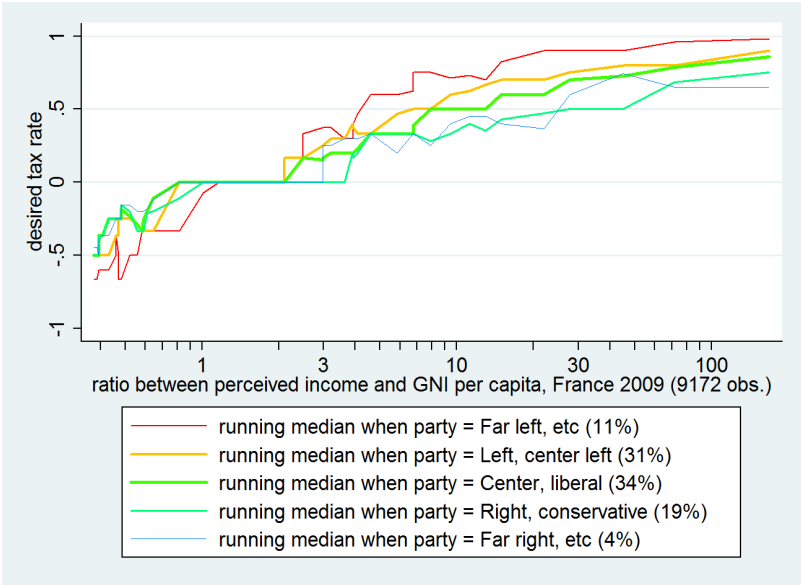


Figure : Running median desired tax rates for Poland at different dates, in proportion to GNI pc (data: ISSP)

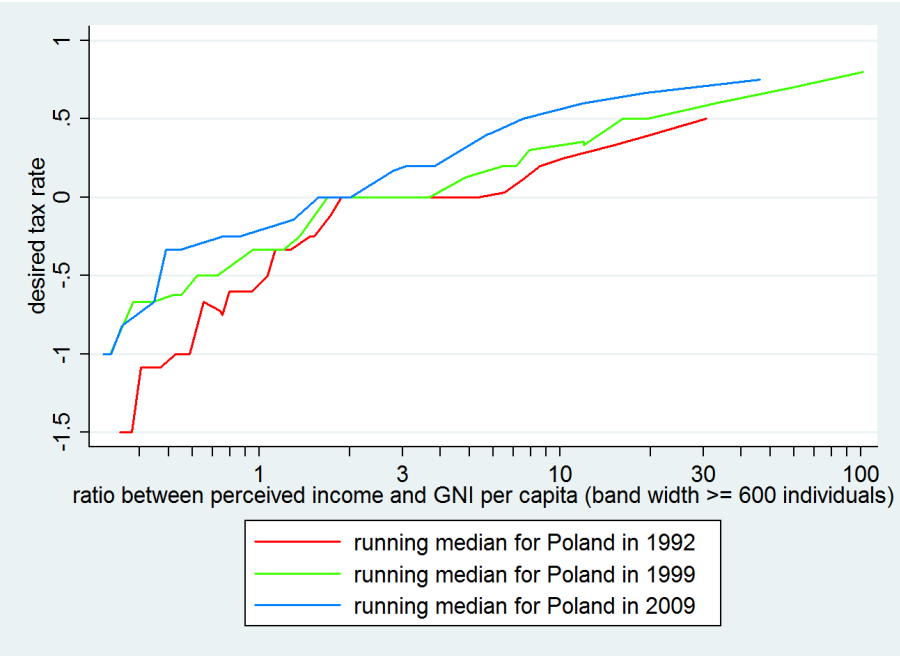


Figure : Running median desired tax rates for Poland at different dates, in 2005 dollars (data: ISSP)

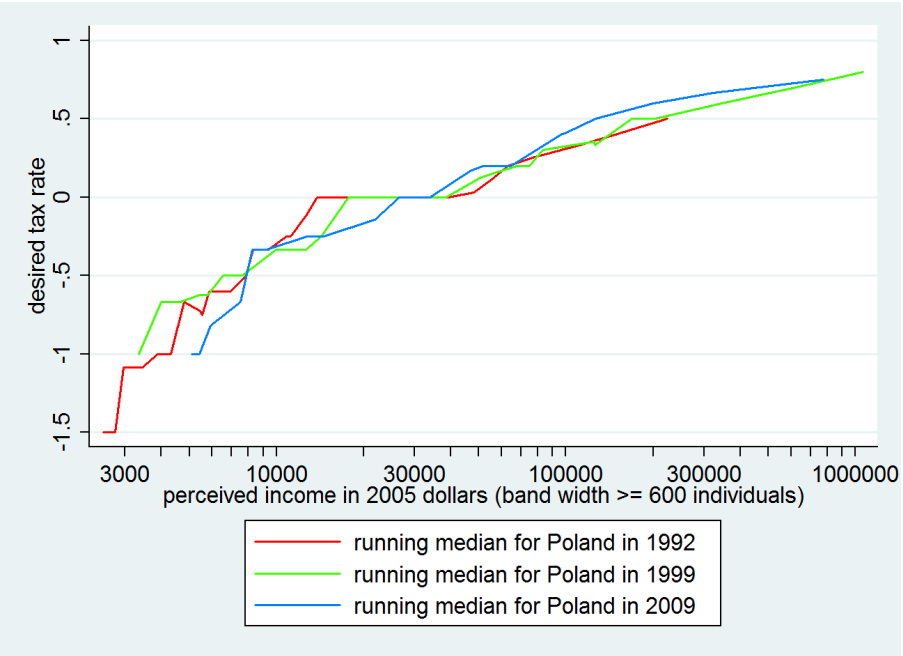


Figure : Running median desired tax rates for different countries in 2009, in proportion to GNI pc (data: ISSP)

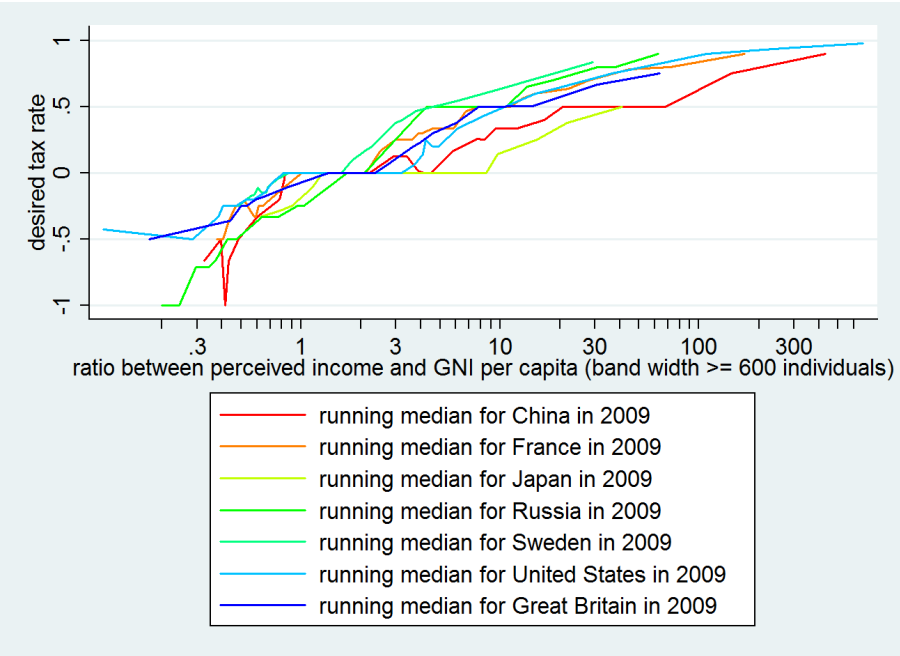


Figure : Running median desired tax rates for different countries in 2009, in 2005 dollars (data: ISSP)

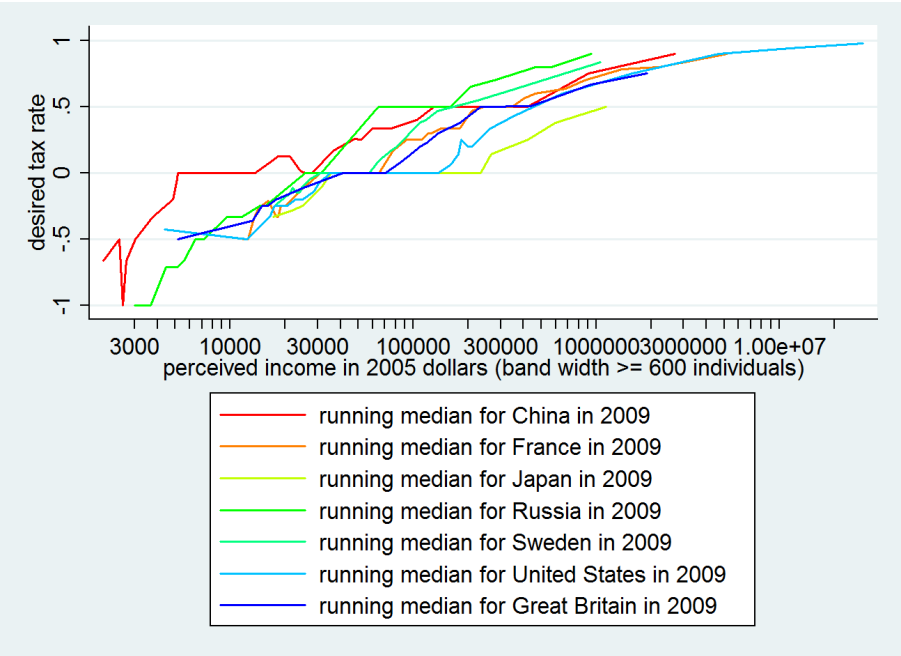


Figure : Running median desired tax rates for all dataset, in function of countries' percentiles of income distribution

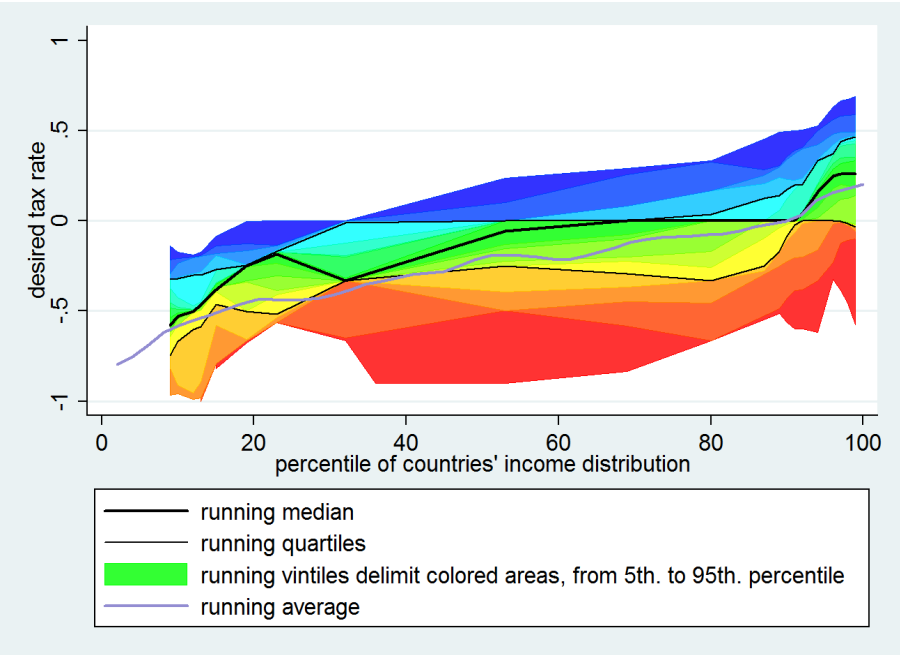


Figure : Running median desired tax rates for all dataset, in proportion of GNI pc (data: ISSP)

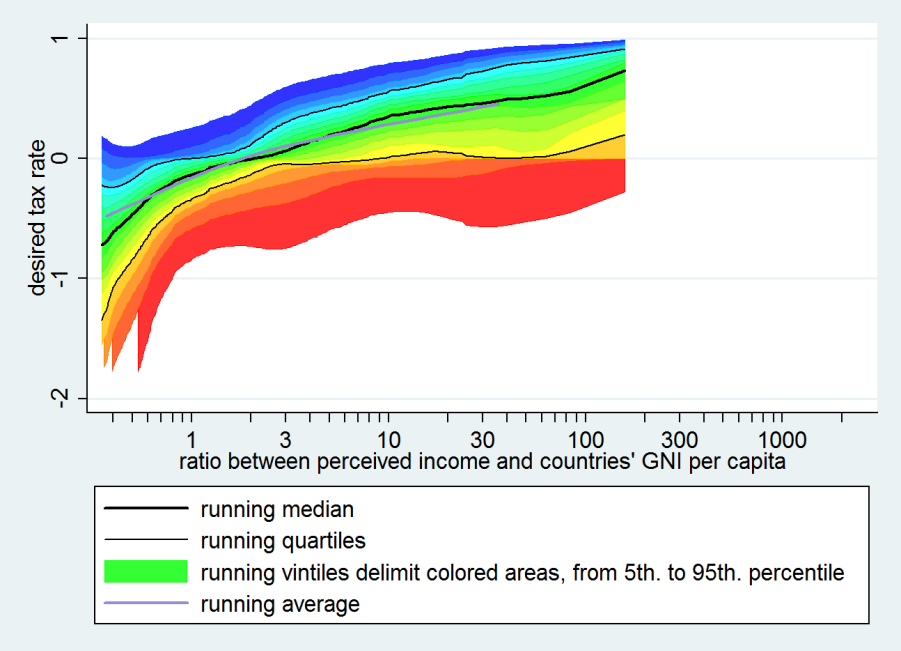


Figure : Running median desired tax rates for all dataset, in 2005 dollars (data: ISSP)

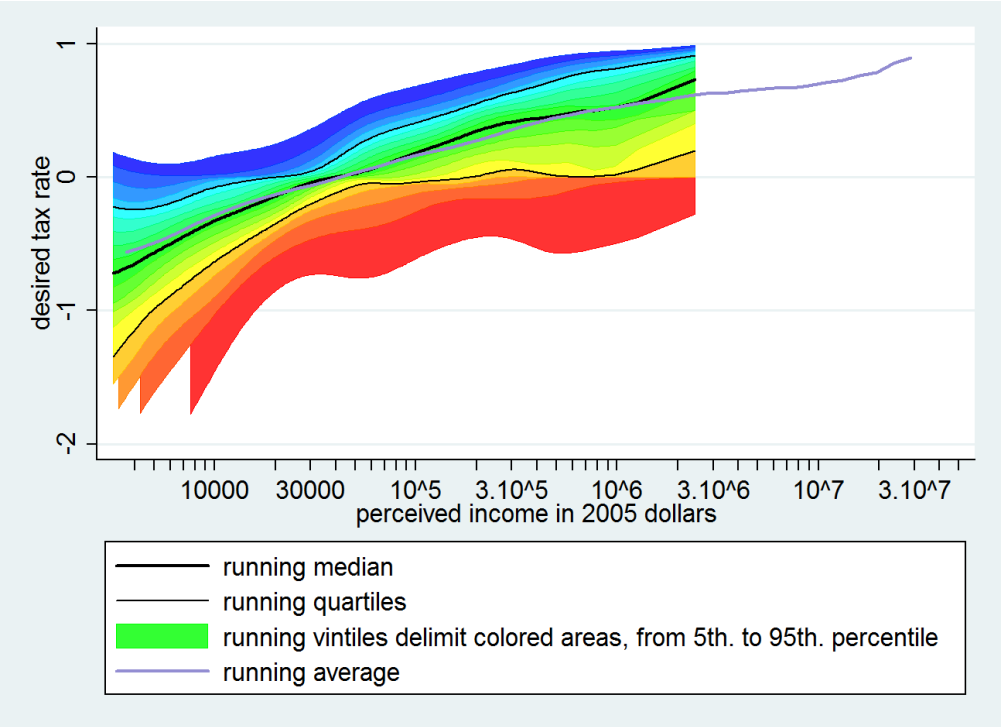


Figure : Running median desired tax rates for all dataset, in function of income in 2005 dollars, non weighted (data: ISSP)

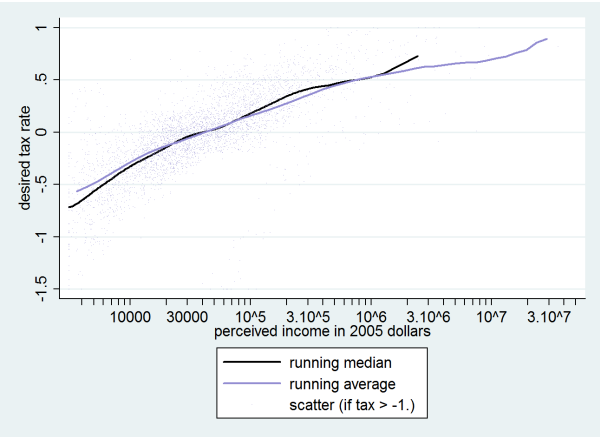
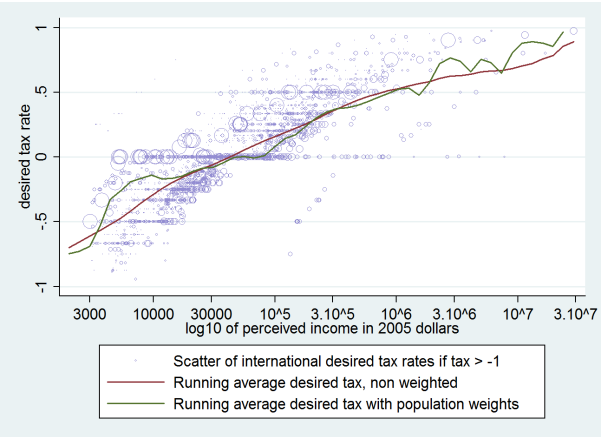
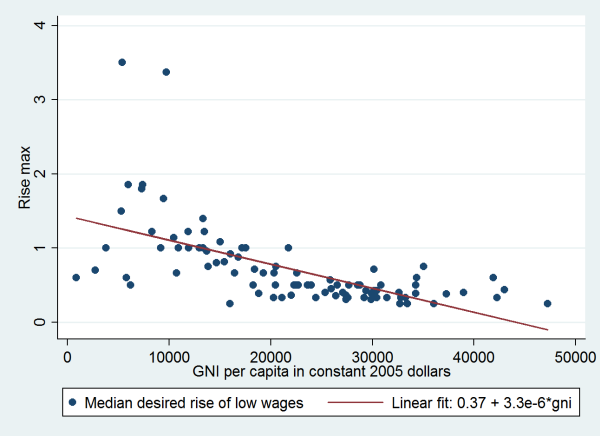
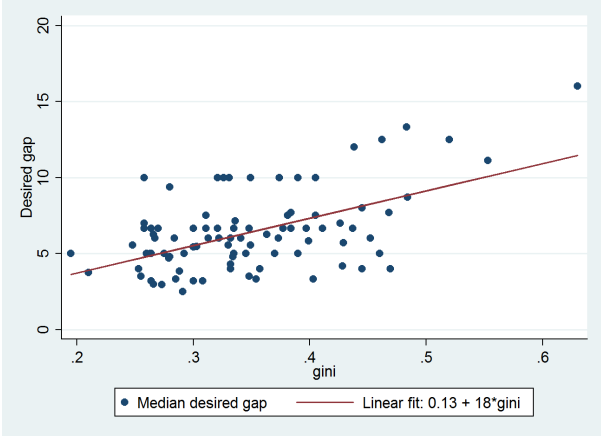


Figure : Running median desired tax rates for all dataset, in 2005 dollars, weighted by countries' population (data: ISSP)

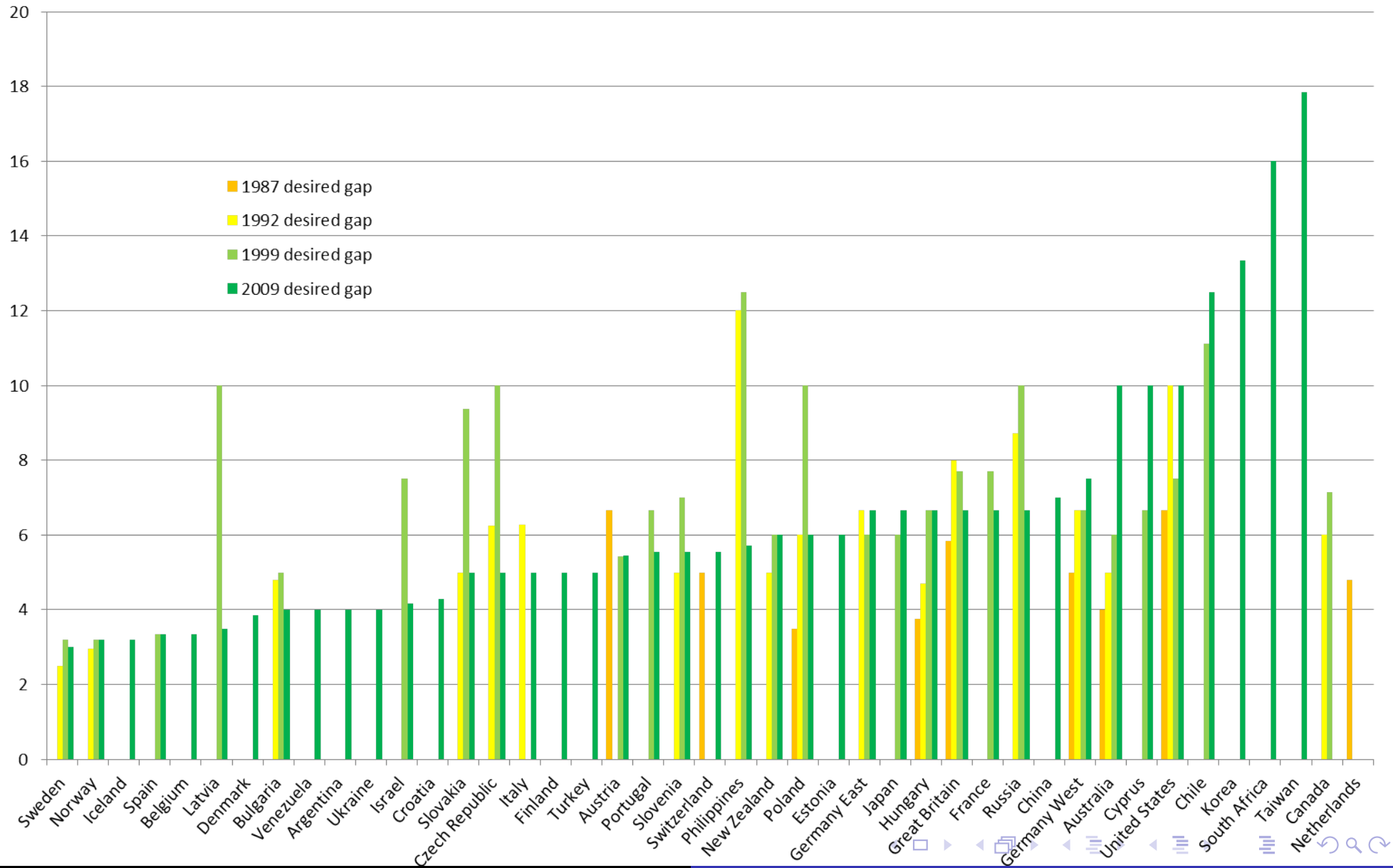


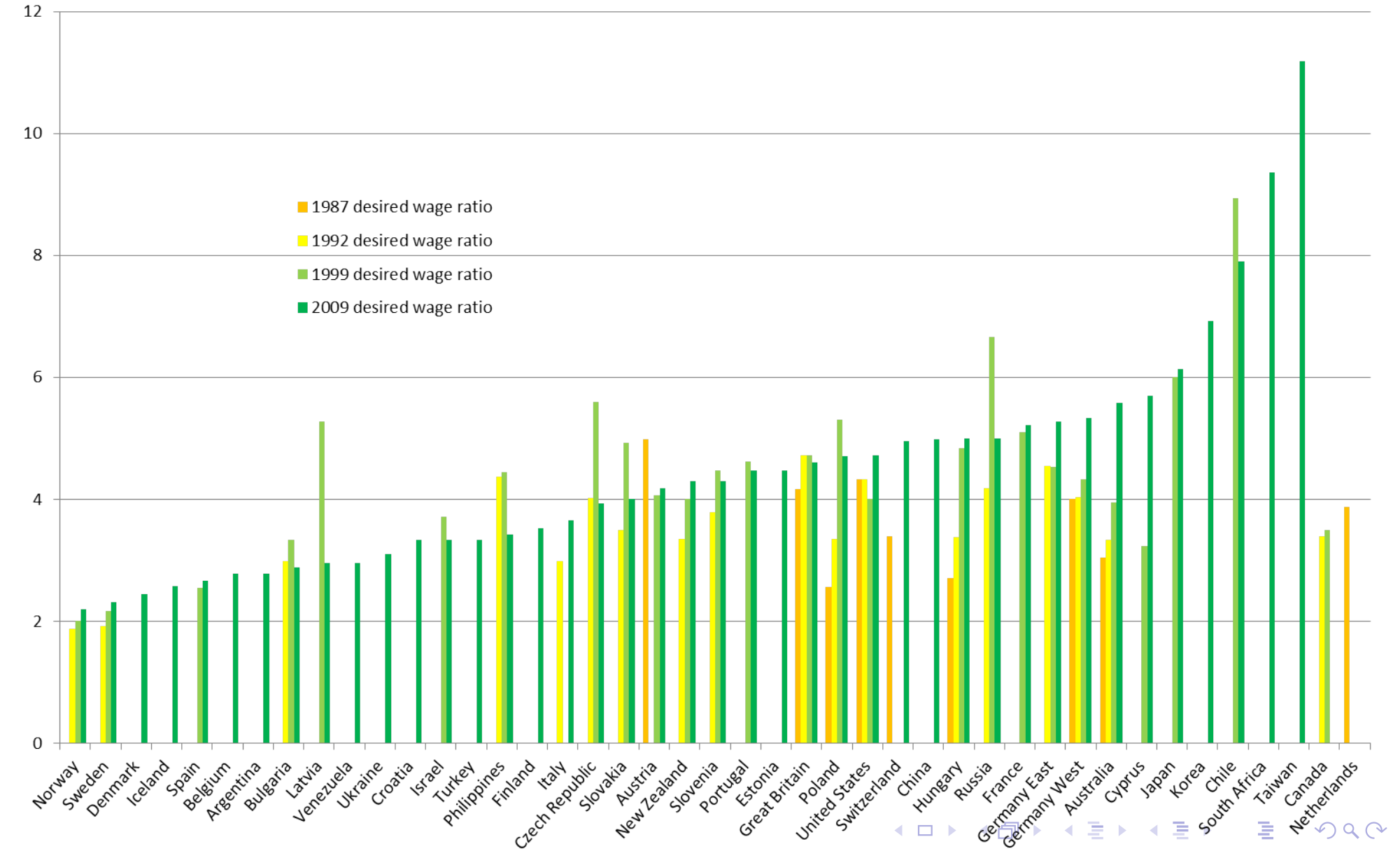


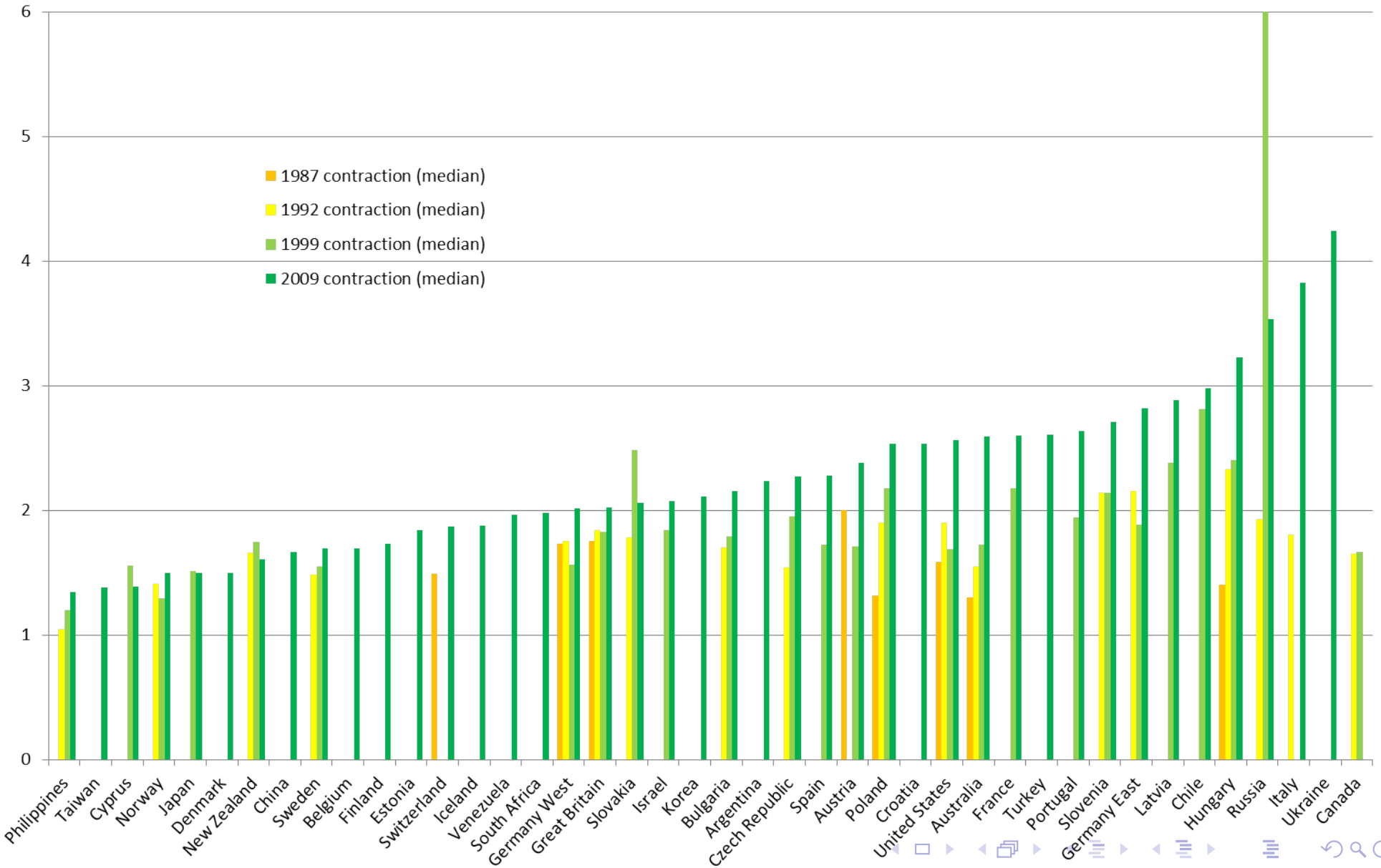
(a) Linear cross-country regression of desired rise of low wages and GNI pc (data: ISSP& World Bank)



(b) Linear cross-country regression of desired maximal gap between wages and Gini (data: ISSP & WB)


20
18
16
14
12
10
8
6
4
2
0
1987 desired gap
1992 desired gap
1999 desired gap
2009 desired gap
Sweden
Norway
Iceland
Spain
Belgium
Latvia
Denmark
Bulgaria
Venezuela
Argentina
Ukraine
Israel
Croatia
Slovakia
Czech Republic
Italy
Finland
Turkey
Austria
Portugal
Slovenia
Switzerland
Philippines
New Zealand
Poland
Estonia
Germany East
Japan
Hungary
Great Britain
France
Russia
China
Germany West
Australia
Cyprus
United States
Chile
Korea
South Africa
Taiwan
Canada
Netherlands


12
10
8
6
4
2
0
1987 desired wage ratio
1992 desired wage ratio
1999 desired wage ratio
2009 desired wage ratio
Norway
Sweden
Denmark
Iceland
Spain
Belgium
Argentina
Bulgaria
Latvia
Venezuela
Ukraine
Croatia
Israel
Turkey
Philippines
Finland
Italy
Czech Republic
Slovakia
Austria
New Zealand
Slovenia
Portugal
Estonia
Great Britain
Poland
United States
Switzerland
China
Hungary
Russia
France
Germany East
Germany West
Australia
Cyprus
Japan
Korea
Chile
South Africa
Taiwan
Canada
Netherlands


6
5
4
3
2
1
0
1987 contraction (median)
1992 contraction (median)
1999 contraction (median)
2009 contraction (median)
Philippines
Taiwan
Cyprus
Norway
Japan
Denmark
New Zealand
China
Sweden
Belgium
Finland
Estonia
Switzerland
Iceland
Venezuela
South Africa
Germany West
Great Britain
Slovakia
Israel
Korea
Bulgaria
Argentina
Czech Republic
Spain
Austria
Poland
Croatia
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Latvia
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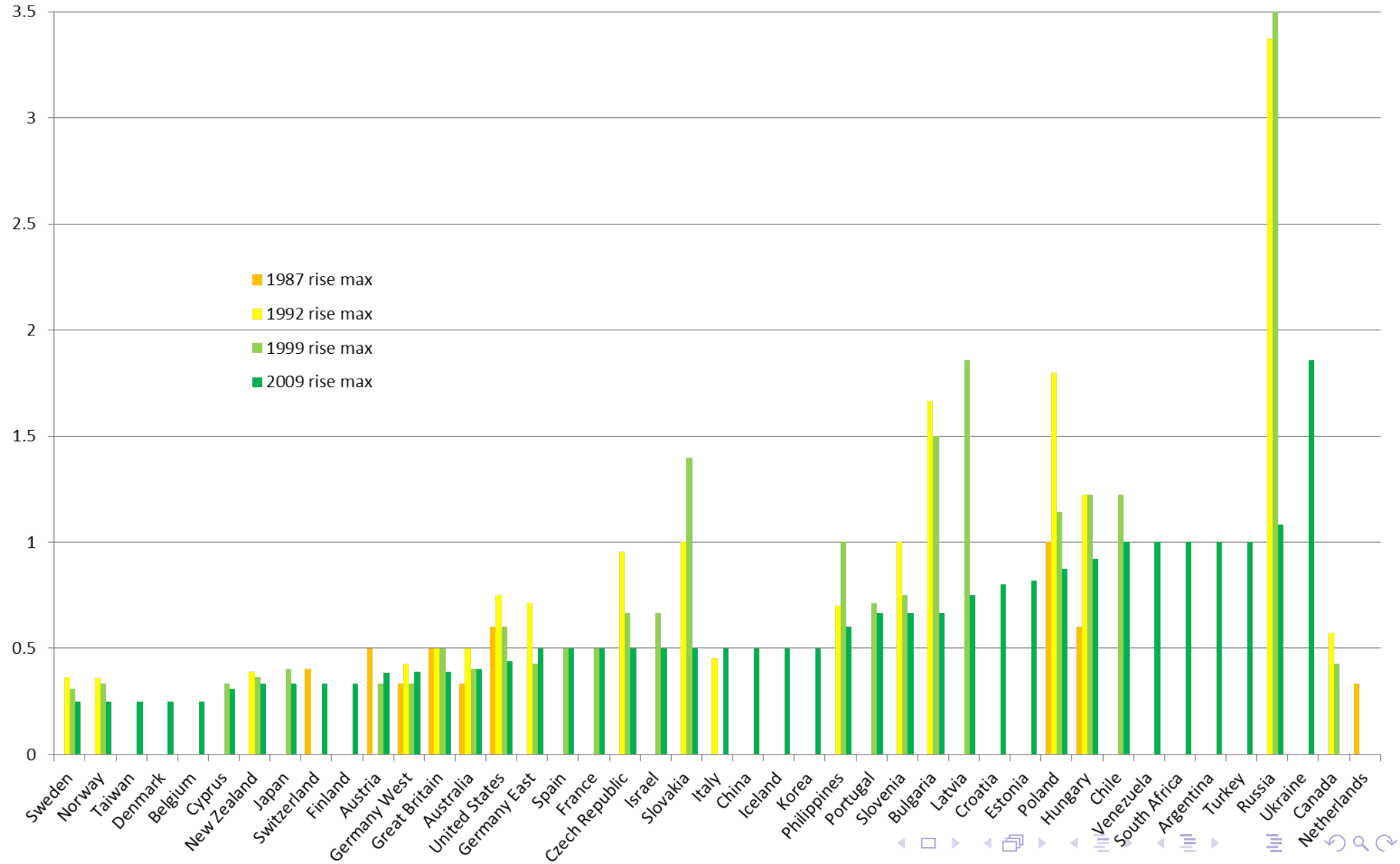
Hungary
Russia
Italy
Ukraine
Canada


3.5
3
2.5
2
1.5
1
0.5
0
1987 rise max
1992 rise max
1999 rise max
2009 rise max
Sweden
Norway
Taiwan
Denmark
Belgium
Cyprus
New Zealand
Japan
Switzerland
Finland
Austria
Germany West
Great Britain
Australia
United States
Germany East
Spain
France
Czech Republic
Israel
Slovakia
Italy
China
Iceland
Korea
Philippines
Portugal
Slovenia
Bulgaria
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South Africa
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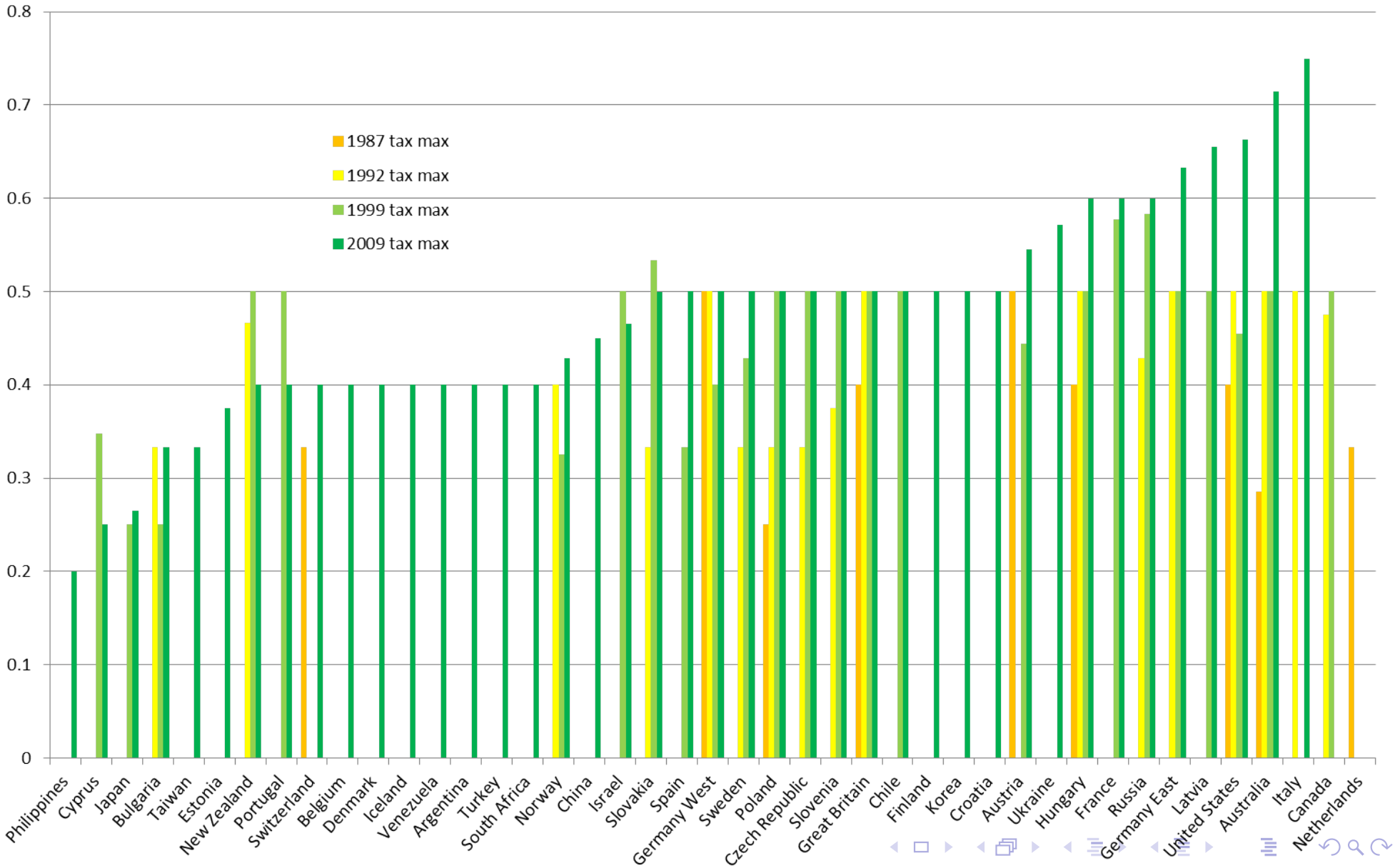
Russia
Ukraine
Canada
Netherlands


0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1987 tax max
1992 tax max
1999 tax max
2009 tax max
Philippines
Cyprus
Japan
Bulgaria
Taiwan
Estonia
New Zealand
Portugal
Switzerland
Belgium
Denmark
Iceland
Venezuela
Argentina
Turkey
South Africa
Norway
China
Israel
Slovakia
Spain
Germany West
Sweden
Poland
Czech Republic
Slovenia
Great Britain
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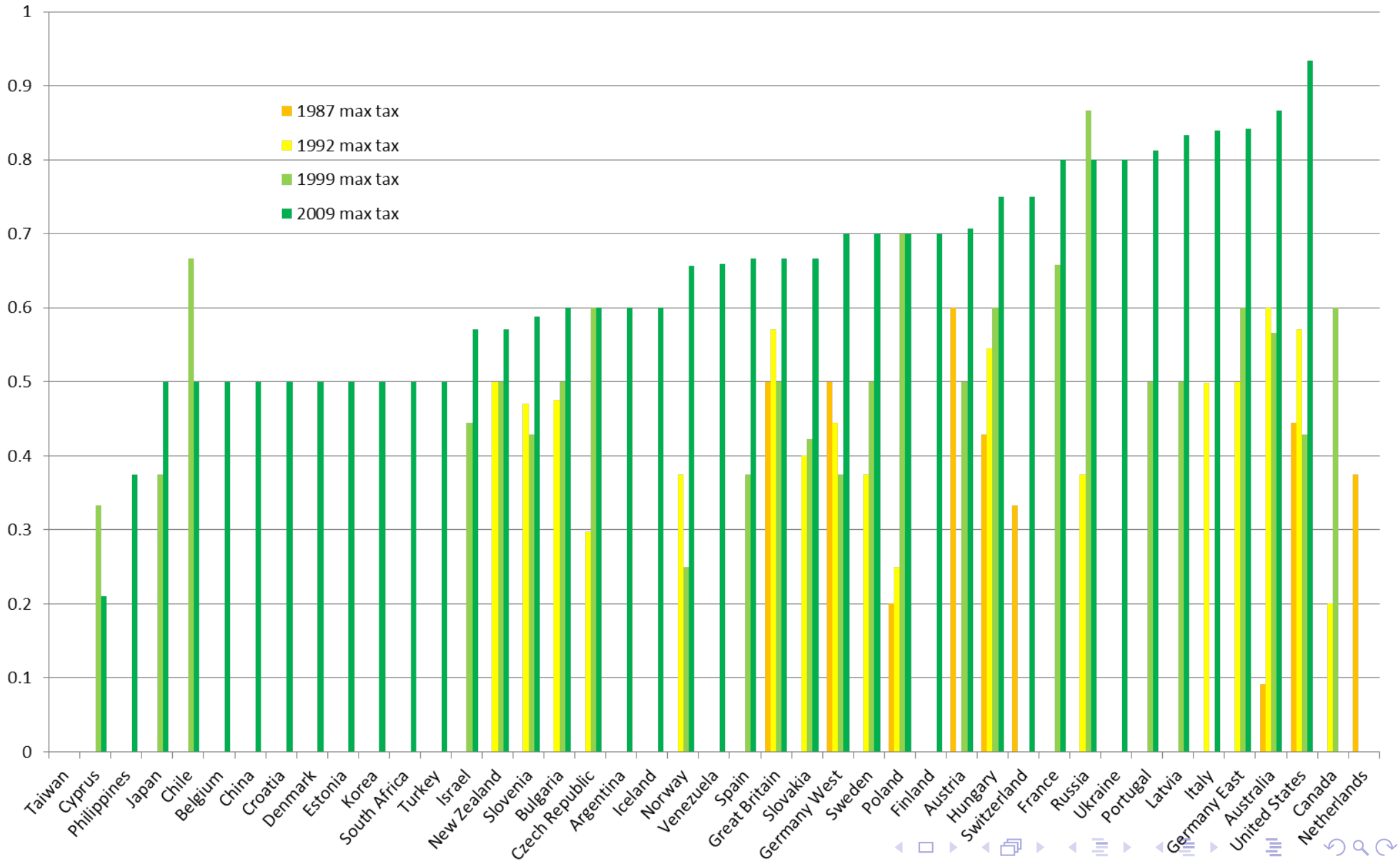
Russia
Germany East
Latvia
United States
Australia
Italy
Canada
Netherlands


1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1987 max tax
1992 max tax
1999 max tax
2009 max tax
Taiwan
Cyprus
Philippines
Japan
Chile
Belgium
China
Croatia
Denmark
Estonia
Korea
South Africa
Turkey
Israel
New Zealand
Slovenia
Bulgaria
Czech Republic
Argentina
Iceland
Norway
Venezuela
Spain
Great Britain
Slovakia
Germany West
Sweden
Poland
Finland
Austria
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Switzerland
France
Russia
Ukraine
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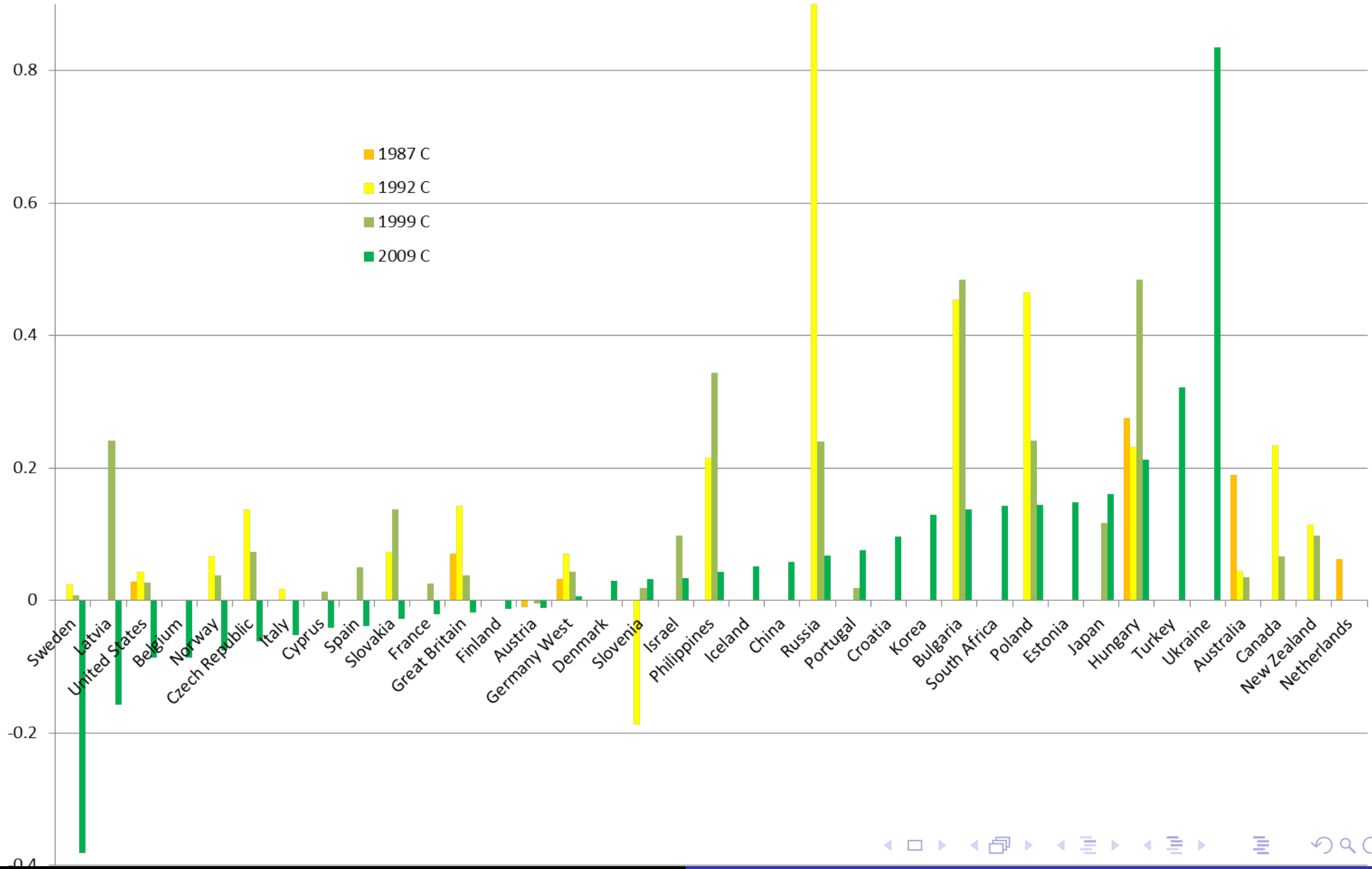
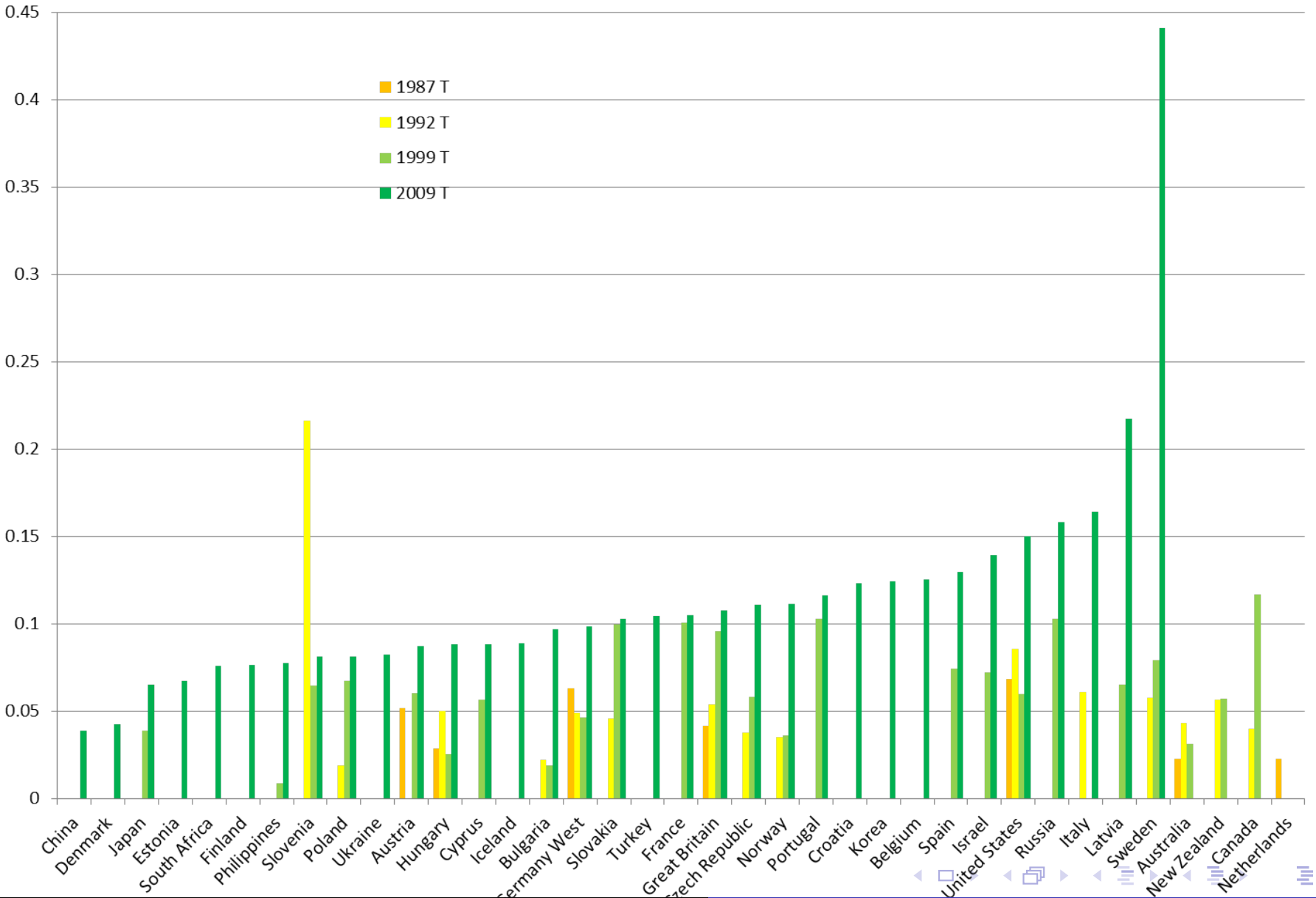
Latvia
Italy
Germany East
Australia
United States
Canada
Netherlands


0.8
0.6
0.4
0.2
0
-0.2
-0.4
1987 C
1992 C
1999 C
2009 C
Sweden
Latvia
United States
Belgium
Norway
Czech Republic
Italy
Cyprus
Spain
Slovakia
France
Great Britain
Finland
Austria
Germany West
Denmark
Slovenia
Israel
Philippines
Iceland
China
Russia
Portugal
Croatia
Korea
Bulgaria
South Africa
Poland
Estonia
Japan
Hungary
Turkey
Ukraine
Australia
Canada
New Zealand
Netherlands


0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1987 T
1992 T
1999 T
2009 T
China
Denmark
Japan
Estonia
South Africa
Finland
Philippines
Slovenia
Poland
Ukraine
Austria
Hungary
Cyprus
Iceland
Bulgaria
Germany West
Slovakia
Turkey
France
Great Britain
Czech Republic
Norway
Portugal
Croatia
Korea
Belgium
Spain
Israel
United States
Russia
Italy
Latvia
Sweden
Australia
New Zealand
Canada
Netherlands

- Sociological characteristics
- Desired standard of living
- Political opinions
- International redistribution
- European benefit system
- Inheritance tax
- Preferences on tax system
- Maximal gap
- Basic income
- Proportion to (dis)advantage with a redistribution
- Maximal income
- Marital quotient
- Grade in [-3;3] several distributions, approval of custom reform
- Behavioral response
- Sectoral redistribution +/-: unemployed, homeless, owners...
- Taxation of capital

Known: $c(q)$, $c^+(q)$, $z(q)$ & $T(z)$. Unknown: $T^+(z)$ & $z^+(q)$

$$\begin{aligned} c^+ - c &= dz - (T^+(z^+) - T(z)) = \dots \\ &\underset{dz \to 0}{=} -\zeta_z^u \cdot z \cdot \left(T^{+\prime}(z) - T'(z) \right) - (T^+(z) - T(z)) + o(dz) \end{aligned}$$

where ζ^u is the uncompensated elasticity: $\zeta_z^u = \frac{1-T^{+\prime}}{z} \frac{\partial z}{\partial (1-T^{+\prime})}$.

Approximating at the first order, one obtains a differential equation of order 1 in T^+:

$$T^{+\prime}(z) = -\frac{T^+(z)}{\zeta_z^u \cdot z} - \frac{c^+(q(z)) - c(q(z)) - T(z)}{\zeta_z^u \cdot z} + T'(z)$$

Defining $V(z) = T^+(z) - T(z)$:

$$V' = -\frac{V + c^+ - c}{z \cdot \zeta_z^u}$$