Appendices

Appendix A: Tables with Empirical Results

The results for the Barro-Lee' s human capital index are reported in the below tables.

A.1 Solow Model

Tables A.1 to A.3 represent the Solow model for our three country samples in all periods and the MRW sample. As we can see, the independent variables are statistically significant at the α=5% and they have the expected signs, namely positive for *lns* and negative for *ln(n+g+δ)* for the non-oil and intermediate countries. For the OECD sample, *lns* is negative and statistically insignificant. $\overline{R^2}$ is, also, lower in the majority of the updated data and the root MSE bigger for the two first samples, especially for the period 1990-2015. In the non-oil countries for the period 1990-2019, $\overline{R^2}$ is approximately 26%, which is lower than half of MRW. Additionally, in all cases except for the OECD countries, the regressions are statistically significant at the α=1%. However, in the updated estimates the restriction isn't hold, apart from non-oil countries in the period 1970-2015 and the OECD countries in the period 1990-2015. About *implied a* (physical capital share) we found that they are lower than MRW in most cases but, unfortunately, they remain bigger than one-third which the Solow model predicts.

Table A 1: Solow model (eq.1) for Non-oil countries.

Variables/ samples	Non-oil 1960-2015	Non-oil 1970-2015	Non-oil 1990-2015	1 MRW
constant	-0.933	3.671	3.661	5.431
	(1.744)	(2.971)	(1.585)**	(1.584)***
ln(s)	0.822	1.119	0.618	1.424
	(0.248)***	(0.245)***	(0.213)***	(0.143)***
ln(n+g+δ)	-4.421	-2.847	-2.561	-1.991
	(0.589)***	(1.038)***	(0.528)***	(0.563)***
$\overline{R^2}$	0.472	0.326	0.261	0.592
p-value F	0	0	0	0
Root MSE	0.838	0.969	0.965	0.689
Restricted regression				
constant	7.772	7.825	8.349	6.872
	(0.300)***	(0.283)***	(0.288)***	(0.121)***
ln(s)-ln(n+g+δ)	1.442	1.418	1.023	1.488
	(0.199)***	(0.186)***	(0.184)***	(0.125)***
$\overline{R^2}$	0.344	0.289	0.158	0.593
p-value F	0	0	0	0
Root MSE	0.935	0.994	1.029	0.689
p-value restriction	0	0.150	0.002	0.363
Implied α	0.591	0.586	0.506	0.599
	(0.033)***	(0.032)***	(0.045)***	(0.020)***
obs.	88	98	128	98

Note:
OLS estimations, (g + δ) is assumed to be 0.05.
Parentheses: Robust standard errors (for all cases except the MRW standard errors that are taken from their paper).
*: significant at the 10%, **: significant at the 5%, ***: significant at the 1%
Dependent variable: ln GDP per working-age person in 2015.
Restriction: Coefficient of *lns* is equal to the negative value of *ln(n+g+ δ)*'s coefficient.

Table A 2: Solow model (eq.1) for Intermediate countries.

Variables/ samples	Intermediate 1960-2015	Intermediate 1970-2015	Intermediate 1990-2015	2 MRW
constant	-2.581	-2.659	0.746	5.349
	(1.556)	(1.468)*	(1.102)	(1.543)***
ln(s)	0.941	1.049	0.412	1.318
	(0.253)***	(0.217)***	(0.203)**	(0.171)***
ln(n+g+δ)	-5.082	-5.158	-3.491	-2.017
	(0.519)***	(0.492)***	(0.377)***	(0.534)***
$\overline{R^2}$	0.628	0.634	0.424	0.588
p-value F	0	0	0	0
Root MSE	0.718	0.721	0.845	0.612
Restricted regression				
constant	7.413	7.362	8.193	7.093
	(0.312)***	(0.270)***	(0.304)***	(0.146)***
ln(s)-ln(n+g+δ)	1.708	1.727	1.081	1.431
	(0.207)***	(0.185)***	(0.197)***	(0.139)***
$\overline{R^2}$	0.458	0.446	0.174	0.586
p-value F	0	0	0	0
Root MSE	0.866	0.888	1.012	0.612
p-value restriction	0	0	0	0.259
Implied α	0.631	0.633	0.519	0.589
	(0.028)***	(0.025)***	(0.046)***	(0.024)***
obs.	67	74	111	75

Note:
OLS estimations, (g + δ) is assumed to be 0.05.
Parentheses: Robust standard errors (for all cases except the MRW standard errors that are taken from their paper).
*: significant at the 10%, **: significant at the 5%, ***: significant at the 1%
Dependent variable: ln GDP per working-age person in 2015.
Restriction: Coefficient of *lns* is equal to the negative value of *ln(n+g+ δ)*'s coefficient.

Table A 3: Solow model (eq.1) for OECD countries.

Variables /samples	OECD 1960 -2015	OECD 1970-2015	OECD 1990-2015	3 MRW
constant	5.471	5.418	9.969	8.021
	(1.715)***	(1.655)***	(1.764)***	(2.518)***
ln(s)	-0.248	-0.211	-0.069	0.511
	(0.327)	(0.317)	(0.216)	(0.434)
ln(n+g+δ)	-1.880	-1.904	-0.295	-0.742
	(0.593)***	(0.587)***	(0.566)	(0.852)
$\overline{R^2}$	0.217	0.231	-0.051	0.012
p-value F	0.011	0.007	0.862	0.345
Root MSE	0.366	0.363	0.431	0.377
Restricted regression				
constant	10.259	10.310	10.863	8.624
	(0.634)***	(0.654)***	(0.331)***	(0.533)***
ln(s)-ln(n+g+δ)	0.440	0.425	0.029	0.554
	(0.348)	(0.366)	(0.178)	(0.365)
$\overline{R^2}$	0.058	0.044	-0.029	0.058
p-value F	0.218	0.257	0.890	0.145
Root MSE	0.401	0.404	0.426	0.368
p-value restriction	0.004	0.002	0.588	0.809
Implied α	0.306	0.298	0.024	0.356
	(0.168)*	(0.180)*	(0.171)	(0.151)**
obs.	27	27	36	22

Note:
OLS estimations, (g + δ) is assumed to be 0.05.
Parentheses: Robust standard errors (for all cases except the MRW standard errors that are taken from their paper).
*: significant at the 10%, **: significant at the 5%, ***: significant at the 1%
Dependent variable: ln GDP per working-age person in 2015.
Restriction: Coefficient of *lns* is equal to the negative value of *ln(n+g+ δ)*'s coefficient.

A.2 The Augmented Solow Model

It is observed that in tables A.4, A.5 and A.6 the human index is statistically significant at the $a = 1\%$ everywhere apart from the OECD countries in the period 1990-2015 and it is, also, with the expected sign. The rest of the variables have the right sign except for the OECD countries in the period 1990-2015. *lns* is statistically significant in all cases, apart from the OECD countries, at the α=10% while in the majority of updated regressions *ln(n+g+δ)* is significant at the α=1%. Moreover, $\overline{R^2}$ is lower than MRW in the non-oil countries but bigger in the intermediate and OECD samples in the periods 1960-2015 and 1970-2015. Furthermore, the restrictions hold in most cases. About *implied a* and *implied β* (human capital share) are significant at the α=5% in non-oil and intermediate samples but *implied β* is significant in the OECD sample only for the first two periods. Nevertheless, *implied a* is smaller than 0.25 and *implied β* is about 0.40. Thus, although our variables, in this case, have the right signs and they are significant, for the two first country categories, we can't accept the augmented Solow model because implied values are different than the Solow model's predictions.

Table A 4: Augmented Solow model (eq.2) for Non-oil countries.

Variables/ samples	Non-oil 1960-2015	Non-oil 1970-2015	Non-oil 1990-2015	4 MRW
constant	5.677	9.336	9.354	6.844
	(1.295)***	(2.352)***	(1.578)***	(1.177)***
ln(s)	0.359	0.477	0.399	0.697
	(0.174)**	(0.164)***	(0.177)**	(0.133)***
ln(n+g+δ)	-2.248	-0.974	-0.758	-1.745
	(0.441)***	(0.819)	(0.524)	(0.416)***
ln(ed)	1.023	1.185	1.101	0.654
	(0.109)***	(0.134)***	(0.143)***	(0.073)***
$\overline{R^2}$	0.731	0.655	0.507	0.779
p-value F	0	0	0	0
Root MSE	0.599	0.697	0.787	0.508
Restricted regression				
constant	7.772	7.691	7.662	7.853
	(0.186)***	(0.202)***	(0.233)***	(0.140)***
ln(s)-ln(n+g+δ)	0.441	0.421	0.342	0.738
	(0.165)***	(0.159)***	(0.167)**	(0.127)***
ln(ed)-ln(n+g+δ)	1.098	1.116	0.969	0.657
	(0.099)***	(0.096)***	(0.086)***	(0.073)***
$\overline{R^2}$	0.728	0.645	0.502	0.780
p-value F	0	0	0	0
Root MSE	0.602	0.695	0.791	0.510
***p*-value restriction**	0.109	0.470	0.266	0.39
Implied α	0.173	0.166	0.148	0.308
	(0.058)***	(0.056)***	(0.064)**	(0.043)***
Implied β	0.433	0.440	0.418	0.274
	(0.045)***	(0.042)***	(0.045)***	(0.033)***
obs.	88	98	128	98

Note:
OLS estimations, (g + δ) is assumed to be 0.05.
Parentheses: Robust standard errors (for all cases except the MRW standard errors that are taken from their paper).
*: significant at the 10%, **: significant at the 5%, ***: significant at the 1%
Dependent variable: ln GDP per working-age person in 2015.
Restriction: Sum of the coefficients of *lns* and *lned* are equal to the negative value of *ln(n+g+ δ)*'s coefficient.

Table A 5: Augmented Solow model (eq.2) for Intermediate countries.

Variables /samples	Intermediate 1960-2015	Intermediate 1970-2015	Intermediate 1990-2015	5 MRW
constant	3.959	4.057	6.297	7.791
	(1.298)***	(1.423)***	(1.251)***	(1.192)***
ln(s)	0.451	0.604	0.331	0.7
	(0.167)***	(0.147)***	(0.178)*	(0.151)***
ln(n+g+δ)	-2.891	-2.887	-1.748	-1.511
	(0.432)	(0.472)***	(0.414)***	(0.403)***
ln(ed)	0.921	0.918	0.889	0.731
	(0.090)***	(0.095)***	(0.126)***	(0.095)***
$\overline{R^2}$	0.831	0.811	0.581	0.771
p-value F	0	0	0	0
Root MSE	0.483	0.518	0.720	0.455
Restricted regression				
constant	7.655	7.391	7.509	7.966
	(0.191)***	(0.158)***	(0.232)***	(0.154)***
ln(s)-ln(n+g+δ)	0.587	0.683	0.377	0.709
	(0.164)***	(0.138)***	(0.172)**	(0.138)***
ln(ed)-ln(n+g+δ)	1.058	1.070	0.985	0.733
	(0.085)***	(0.080)***	(0.083)***	(0.093)***
$\overline{R^2}$	0.816	0. 799	0.582	0.7745
p-value F	0	0	0	0
Root MSE	0.504	0.534	0.720	0.452
p-value restriction	0.006	0.022	0.326	0.883
Implied α	0.222	0.248	0.161	0.290
	(0.054)***	(0.043)***	(0.064)**	(0.048)***
Implied β	0. 399	0.390	0.417	0.3
	(0.042)***	(0.034)***	(0.044)***	(0.039)***
obs.	67	74	111	75

Note:
OLS estimations, (g + δ) is assumed to be 0.05.
Parentheses: Robust standard errors (for all cases except the MRW standard errors that are taken from their paper).
*: significant at the 10%, **: significant at the 5%, ***: significant at the 1%
Dependent variable: ln GDP per working-age person in 2015.
Restriction: Sum of the coefficients of *lns* and *lned* are equal to the negative value of *ln(n+g+ δ)*'s coefficient.

Table A 6: Augmented Solow model (eq.2) for OECD countries.

Variables/ samples	OECD 1960-2015	OECD 1970-2015	OECD 1990-2015	6 MRW
constant	8.520	8.444	11.516	8.637
	(1.186)***	(1.450)***	(1.729)***	(2.214)***
ln(s)	0.065	0.005	-0.259	0.276
	(0.245)	(0.258)	(0.240)	(0.389)
ln(n+g+δ)	-1.165	-1.155	0.184	-1.076
	(0.408)***	(0.489)**	(0.553)	(0.756)
ln(ed)	0.837	0.882	0.640	0.768
	(0.207)***	(0.227)***	(0.343)*	(0.293)**
$\overline{R}^2$	0.459	0.449	-0.009	0.244
p-value F	0.001	0.001	0.336	0.046
Root MSE	0.304	0.307	0.422	0.33
Restricted regression				
constant	9.052	8.988	10.370	8.716
	(0.568)***	(0.609)***	(0.537)***	(0.466)***
ln(s)-ln(n+g+δ)	0.135	0.066	-0.265	0.283
	(0.189)	(0.216)	(0.239)	(0.334)
ln(ed)-ln(n+g+δ)	0.880	0.935	0.431	0.769
	(0.177)***	(0.192)***	(0.317)	(0.284)**
$\overline{R}^2$	0.48	0.471	0.007	0.279
p-value F	0.0002	0.0002	0.402	0.016
Root MSE	0.298	0.301	0.419	0.284
p-value restriction	0.626	0.674	0.439	0.971
Implied α	0.067	0.033	-0.227	0.138
	(0.086)	(0.104)	(0.212)	(0.147)
Implied β	0.437	0.467	0.369	0.375
	(0.053)***	(0.065)***	(0.232)	(0.119)**
obs.	27	27	36	22

Note:
OLS estimations, (g + δ) is assumed to be 0.05.
Parentheses: Robust standard errors (for all cases except the MRW standard errors that are taken from their paper).
*: significant at the 10%, **: significant at the 5%, ***: significant at the 1%
Dependent variable: ln GDP per working-age person in 2015.
Restriction: Sum of the coefficients of *lns* and *lned* are equal to the negative value of *ln(n+g+ δ)*'s coefficient.

A.3 Conditional Convergence

It is noticed from tables A.7 to A.9 that the initial logarithm of the GDP per worker is negative and statistically significant at the $\alpha=1\%$ in all cases. That indicates that there is conditional convergence when controlling for the saving rate, population growth and human capital. The coefficient of initial $ln(Y/L)$ is higher than MRW, in absolute terms, in the periods 1960-2015 and 1970-2015. Furthermore, $\acute{R}^2$ is lower than MRW for non-oil samples, intermediate and OECD samples for the periods 1970-2015 and 1990-2015, especially for the last one. However, the restriction is hold. Although the *implied λ* (convergence rate) is statistically significant, they are, also, lower than the Solow model's predictions. About *implied a* and *β*, they are statistically significant in most cases. The significant *implied a* and *implied β* are between 0.2 and 0.3.

Table A 7: Conditional convergence on *lns*, *ln(n+g+δ)* and *lned* (eq.3) for Non-oil countries. Restricted regression.

Variables/ samples	Non-oil 1960-2015	Non-oil 1970-2015	Non-oil 1990-2015	7 MRW
constant	3.684	2.963	1.286	2.456
	(0.645)***	(0.488)***	(0.399)***	(0.473)***
initial *ln(Y/L)*	-0.469	-0.393	-0.155	-0.298
	(0.082)***	(0.058)***	(0.045)***	(0.060)***
ln(s)-ln(n+g+δ)	0.491	0.449	0.282	0.5
	(0.144)***	(0.117)***	(0.108)***	(0.082)***
ln(ed)-ln(n+g+δ)	0.579	0.477	0.097	0.235
	(0.124)***	(0.094)***	(0.072)	(0.059)***
$\overline{R^2}$	0.432	0.409	0.132	0.465
***p*-value F**	0	0	0.0003	0
Root MSE	0.493	0.477	0.396	0.327
***p*-value restriction**	0.546	0.782	0.677	0.407
Implied α	0.237	0.233	0.204	0.288
	(0.061)***	(0.052)***	(0.068)***	(0.038)***
Implied β	0.279	0.249	0.070	0.135
	(0.055)***	(0.045)***	(0.051)	(0.032)***
Implied λ	0.012	0.011	0.007	0.014
	(0.003)***	(0.002)***	(0.002)***	(0.003)***
obs.	88	98	128	98

Note:
OLS estimations, $(g + δ)$ is assumed to be 0.05.
Parentheses: Robust standard errors (for all cases except the MRW standard errors that are taken from their paper).
*: significant at the 10%, **: significant at the 5%, ***: significant at the 1%
Dependent variable: ln GDP per working-age person in 2015 minus ln GDP per working-age person in initial time, i.e., 1960, 1970 and 1990.
Restriction: Sum of the coefficients of *lns* and *lned* are equal to the negative value of *ln(n+g+ δ)*'s coefficient.

Table A 8: Conditional convergence on *lns*, *ln(n+g+δ)* and *lned* (eq.3) for Intermediate countries. Restricted regression.

Variables/ samples	Intermediate 1960-2015	Intermediate 1970-2015	Intermediate 1990-2015	8 MRW
constant	4.048	3.333	1.479	3.09
	(0.682)***	(0.718)***	(0.467)***	(0.529)***
initial *ln(Y/L)*	-0.523	-0.449	-0.185	-0.372
	(0.084)***	(0.089)***	(0.055)***	(0.067)***
ln(s)-ln(n+g+δ)	0.589	0.579	0.304	0.506
	(0.149)***	(0.116)***	(0.119)**	(0. 095)***
ln(ed)-ln(n+g+δ)	0.576	0.476	0.129	0.266
	(0.121)***	(0.111)***	(0.080)	(0.080)***
$\overline{R^2}$	0.528	0.424	0.139	0.437
***p*-value F**	0	0	0.0006	0
Root MSE	0.410	0.408	0.407	0.304
***p*-value restriction**	0.056	0.222	0.530	0.405
Implied α	0.272	0.282	0.212	0.286
	(0.06)***	(0.048)***	(0.071)***	(0.045)***
Implied β	0.266	0.232	0.089	0.149
	(0.054)***	(0.048)***	(0.055)	(0.042)***
Implied λ	0.013	0.013	0.008	0.019
	(0.003)***	(0.003)***	(0.003)***	(0.004)***
obs.	67	74	111	75

Note:
LS estimations, (g + δ) is assumed to be 0.05.
Parentheses: Robust standard errors (for all cases except the MRW standard errors that are taken from their paper).
*: significant at the 10%, **: significant at the 5%, ***: significant at the 1%
Dependent variable: ln GDP per working-age person in 2015 minus ln GDP per working-age person in initial time, i.e., 1960, 1970 and 1990.
Restriction: Sum of the coefficients of *lns* and *lned* are equal to the negative value of *ln(n+g+ δ)*'s coefficient.

Table A 9: Conditional convergence on *lns*, *ln(n+g+δ)* and *lned* (eq.3) for OECD countries. Restricted regression.

Variables/ samples	OECD 1960-2015	OECD 1970-2015	OECD 1990-2015	9 MRW
constant	5.906	5.799	2.640	3.554
	(1.449)***	(1.512)***	(0.725)***	(0.634)***
initial *ln(Y/L)*	-0.640	-0.631	-0.218	-0.402
	(0.156)***	(0.165)***	(0.068)***	(0.069)***
ln(s)-ln(n+g+δ)	0.373	0.229	-0.019	0.395
	(0.162)**	(0.177)	(0.124)	(0.152)**
ln(ed)-ln(n+g+δ)	0.484	0.528	0.0511	0.241
	(0.204)**	(0.213)**	(0.129)	(0.142)
$\overline{R^2}$	0.666	0.548	0.181	0.659
***p*-value F**	0	0.003	0.024	0
Root MSE	0.250	0.259	0.186	0.145
***p*-value restriction**	0.206	0.223	0.147	0.443
Implied α	0.201	0.131	-0.018	0.242
	(0.077)***	(0.091)	(0.120)	(0.079)***
Implied β	0.261	0.299	0.049	0.147
	(0.088)***	(0.093)***	(0.124)	(0.079)*
Implied λ	0.019	0.022	0.009	0.021
	(0.008)**	(0.009)**	(0.003)***	(0.005)***
obs.	27	27	36	22

Note:
OLS estimations, (g + δ) is assumed to be 0.05.
Parentheses: Robust standard errors (for all cases except the MRW standard errors that are taken from their paper).
*: significant at the 10%, **: significant at the 5%, ***: significant at the 1%
Dependent variable: ln GDP per working-age person in 2015 minus ln GDP per working-age person in initial time, i.e., 1960, 1970 and 1990.
Restriction: Sum of the coefficients of *lns* and *lned* are equal to the negative value of *ln(n+g+ δ)*'s coefficient.

Appendix B: Restricted Solow Model, Restricted Augmented Model and Unrestricted Convergence

B.1 Solow Model (Restricted)

In figures B.1 and B.2, the confidence interval plots of the coefficients of the savings and growth population by restricted eq.1 are represented. All coefficients of savings are similar to MRW except for those in the period 1990-2015 which are lower. Similarly, population growth's coefficients are close to MRW's coefficient, apart from those in the period 1990-2015, which are higher.

Figure B 1: Solow model: eq. 1, confidence interval of the coefficient of savings (*lns*). Restricted model
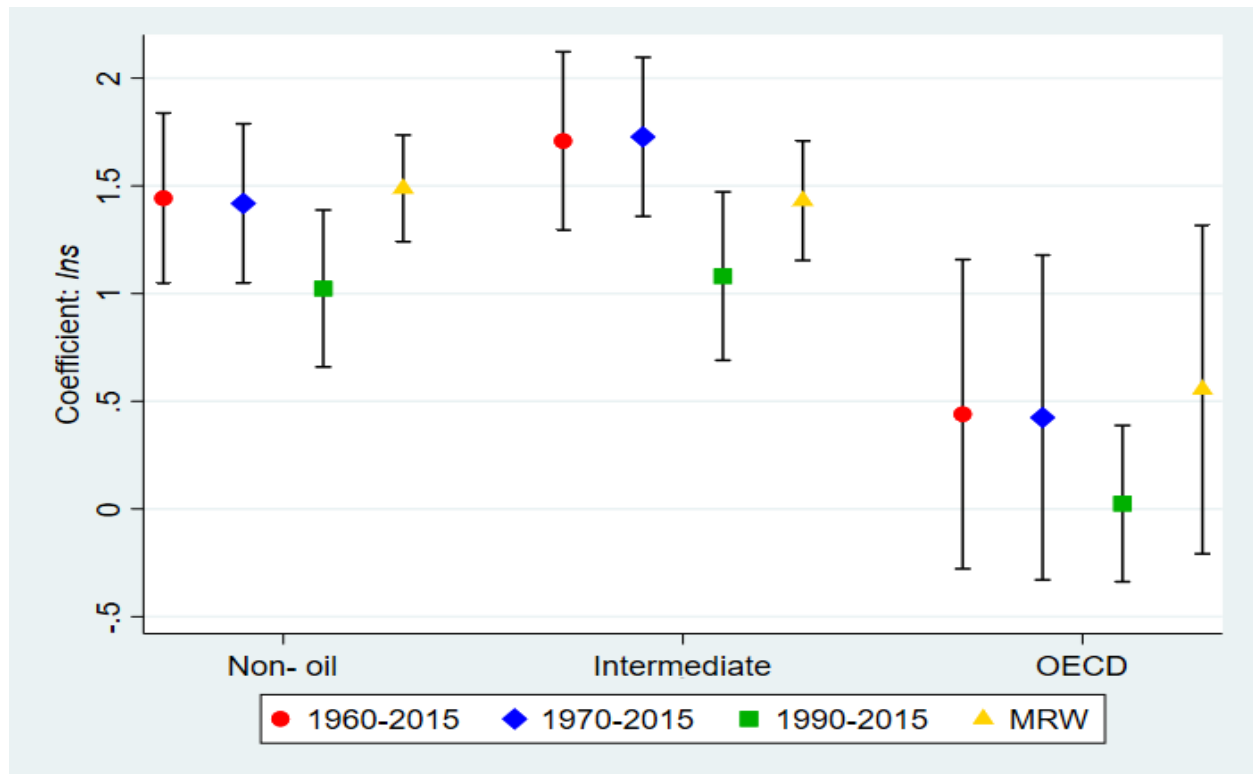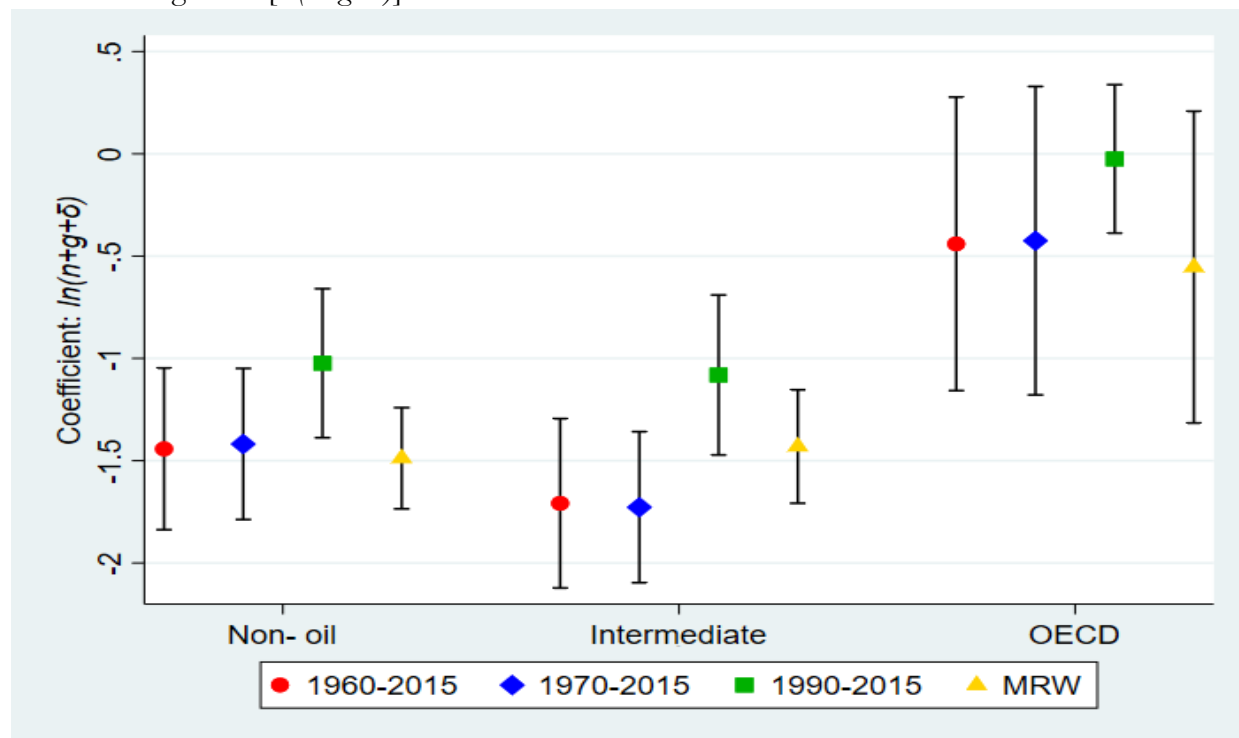
Figure B 2: Solow model: eq. 1, confidence interval of the coefficient of population growth [$ln(n+g+\delta)$]. Restricted model

B.2 The Augmented Solow (Restricted)

In the same way, in Figures B.3-B.5, the confidence interval graphs of the coefficients of the saving rates, population growth and human capital by restricted eq.2 are reported. In Figure B.3, it seems that the restricted *lns'* coefficients are smaller than MRW's coefficients and that for the period 1990-2015 the OECD's coefficient changes sign but remains insignificant. Figure B.4 shows that the restricted *ln(n+g+δ)'*s coefficients are similar to those of MRW and that the coefficient of the OECD countries in the period 1990-2015 becomes insignificant (in MRW is significant). As we have already mentioned it is more essential to refer to *lned*. We see that for all cases, except for the OECD countries in the period 1990-2015 which became statistically insignificant, it is higher than MRW's ones. That indicates once again that human capital becomes, indeed, more important for economic growth.

Figure B 3: Augmented Solow model: eq. 2, confidence interval of the coefficient of savings
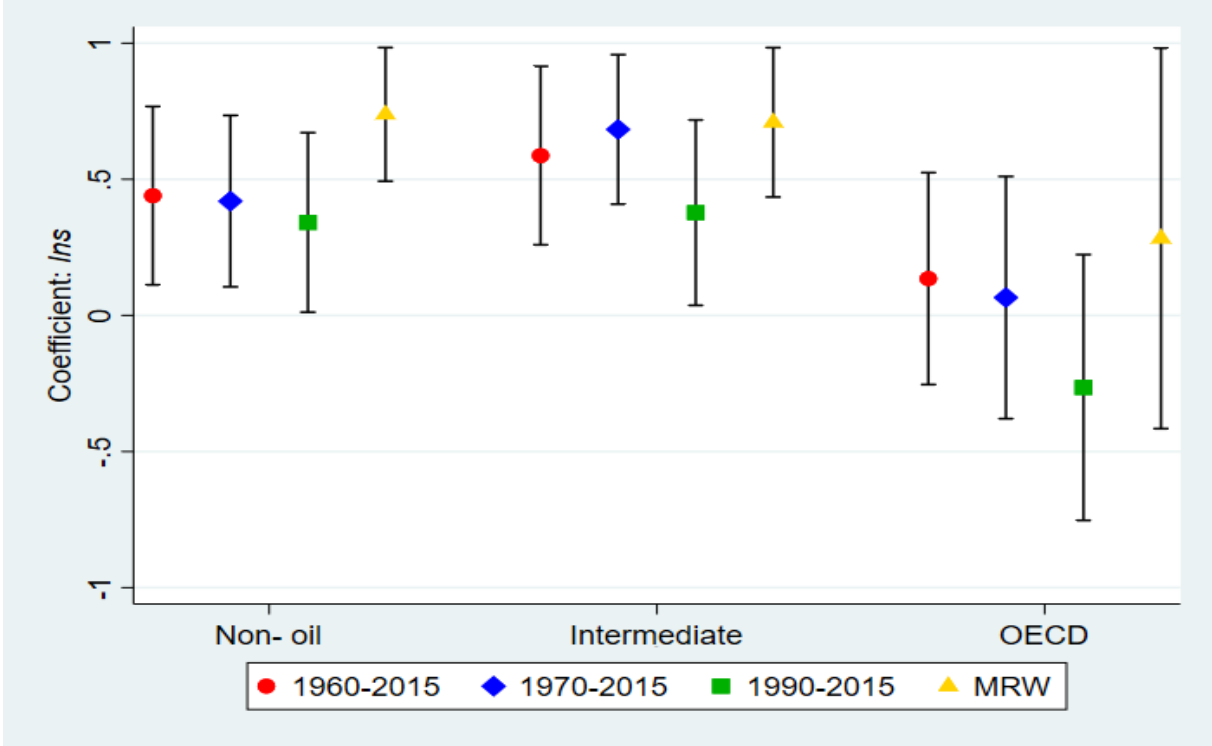(*lns*). Restricted model

Figure B 4: Augmented Solow model: eq.2, confidence interval of the coefficient of population
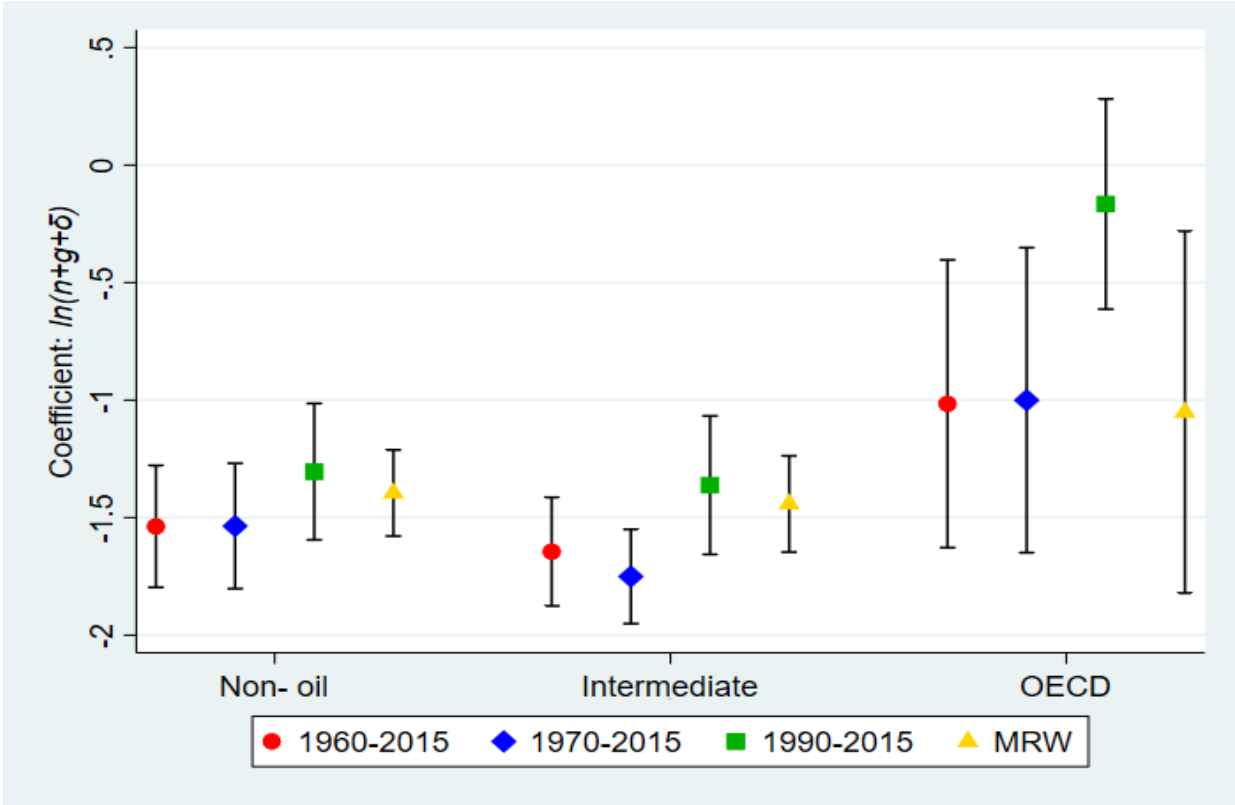growth [*ln(n+g+δ)*]. Restricted model

Figure B 5: Augmented Solow model: eq. 2, confidence interval of the coefficient of education
(*lned*). Restricted model
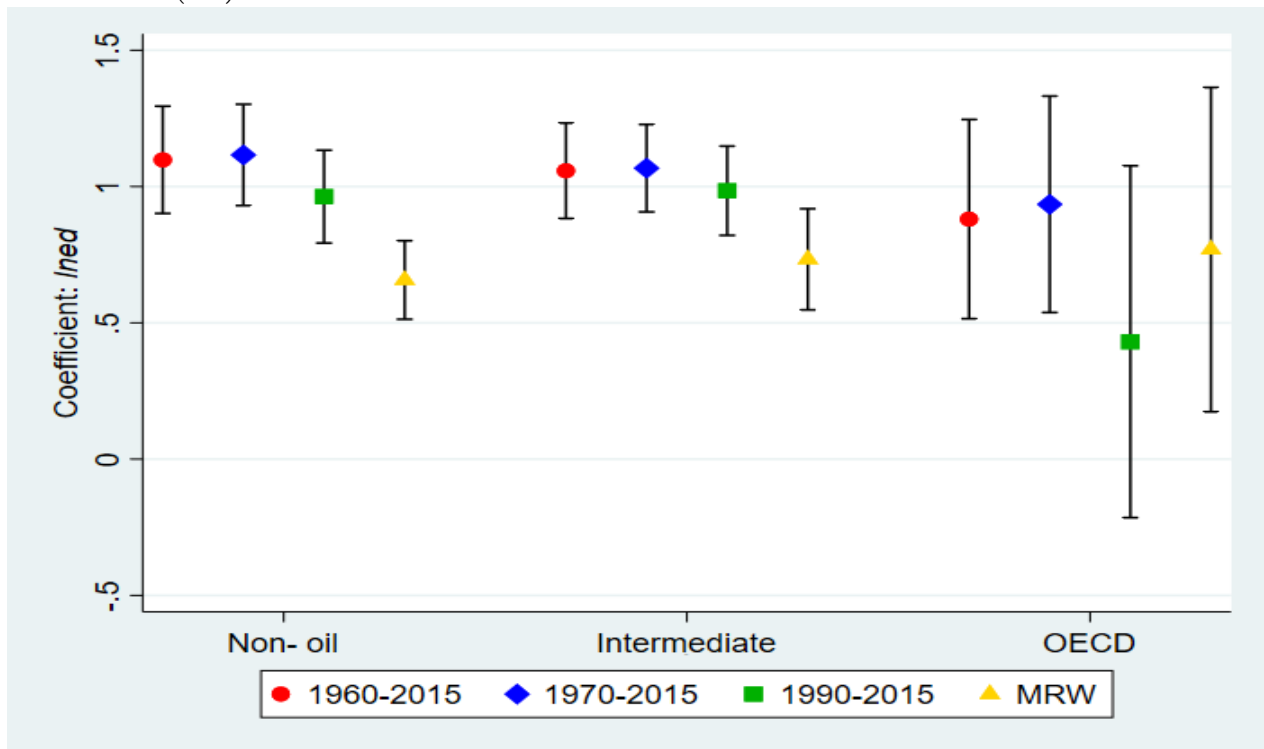
B.3 Conditional Convergence (Unrestricted Model)

About conditional convergence on saving rates, population growth and human capital, the unrestricted coefficient of the initial logarithm of GDP per worker by eq.3 are represented in Figure B.6. Analytically, the unrestricted coefficients of initial $ln(Y/L)$ are negative and statistically significant in all samples. Specifically, the updated coefficients are lower than MRW for the periods 1960-2015 and 1970-2015 but higher for the period 1990-2015.

Figure B 6: Conditional convergence on *lns*, *ln(n+g+δ)* and *lned*: eq.3, confidence interval of the coefficient of initial GDP per working age population [*ln(Y/L)*].
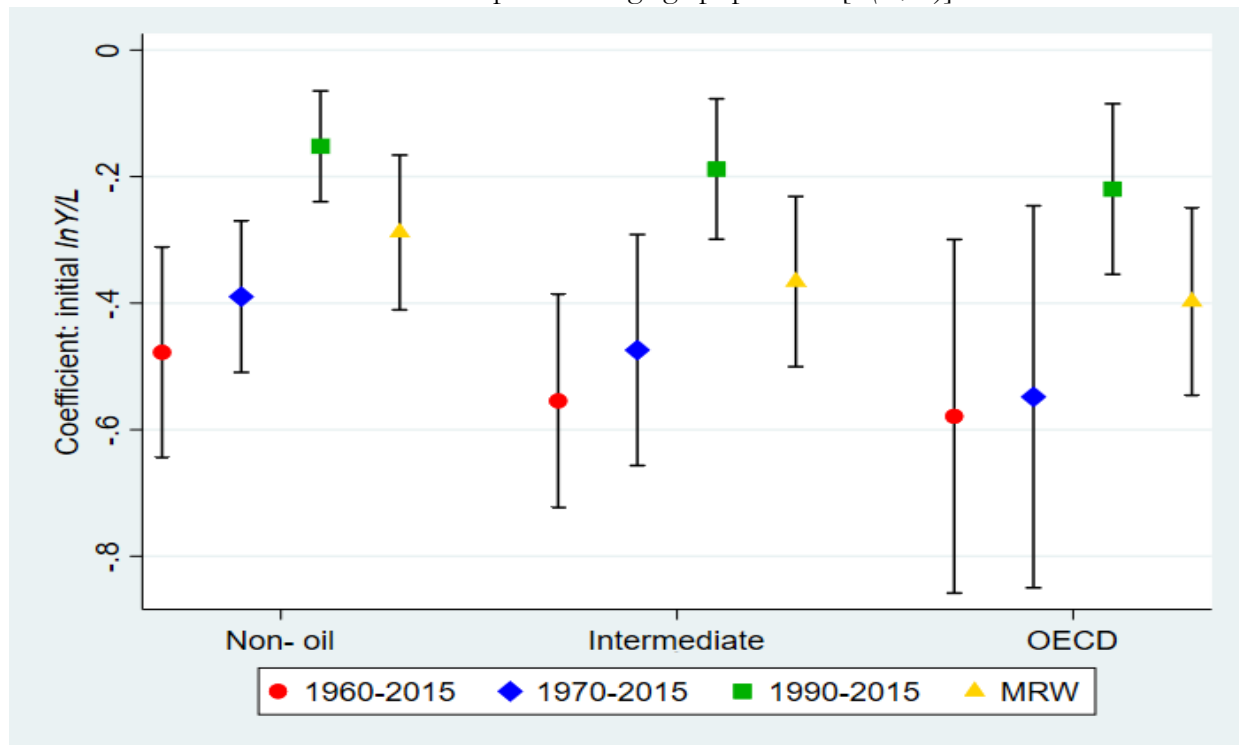
Appendix C: Implied values for α, β and λ

C.1 Solow Model

In Figure C.1 are represented the confidence interval plot of physical capital share (*Implied a*) by eq.1. All coefficients are similar to MRW except for those in the period 1990-2015 which are lower. *Implied a*, also, becomes insignificant for the OECD countries (it is significant in MRW). It is important to refer that they are higher, around 0.6, than 1/3 which is supported by the Solow model except for the case of the OECD countries.

Figure C 1: Solow model, eq. 1, confidence interval of capital share (*Implied a*)
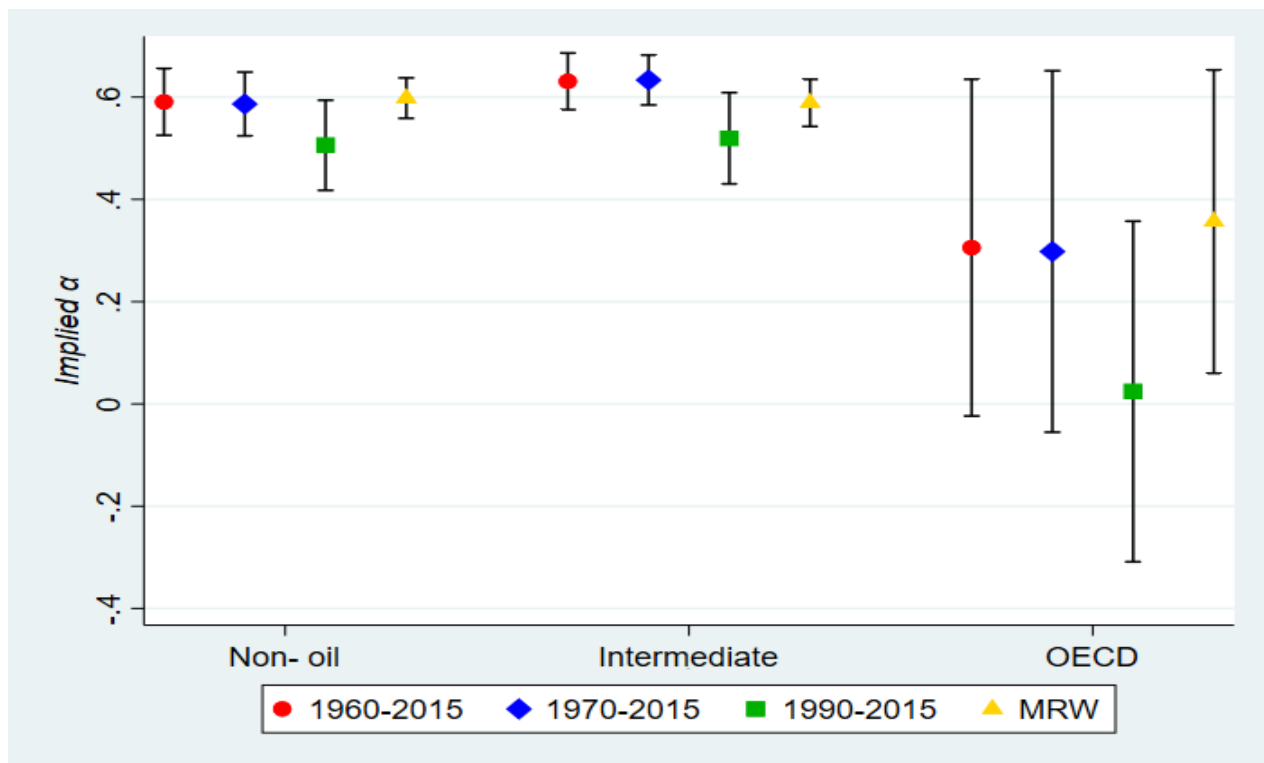
C.2 The Augmented Solow Model

The confidence interval of physical capital share (*Implied a*) and human capital share (*Implied β*) by eq.2 are displayed in Figures C.2 and C.3, respectively. *Implied a* are smaller than those of MRW, especially for the period 1990-2015. *Implied a* are, also, around 0.2 which is smaller than the theoretical 1/3. About *implied β*, it is noticed that they are higher than MRW's *implied β* and close to 0.4 but they become insignificant for the OECD countries in the period 1990-2015 (it is significant in MRW).

Figure C 2: Augmented Solow model: eq.2, confidence interval of physical capital share (*Implied a*)
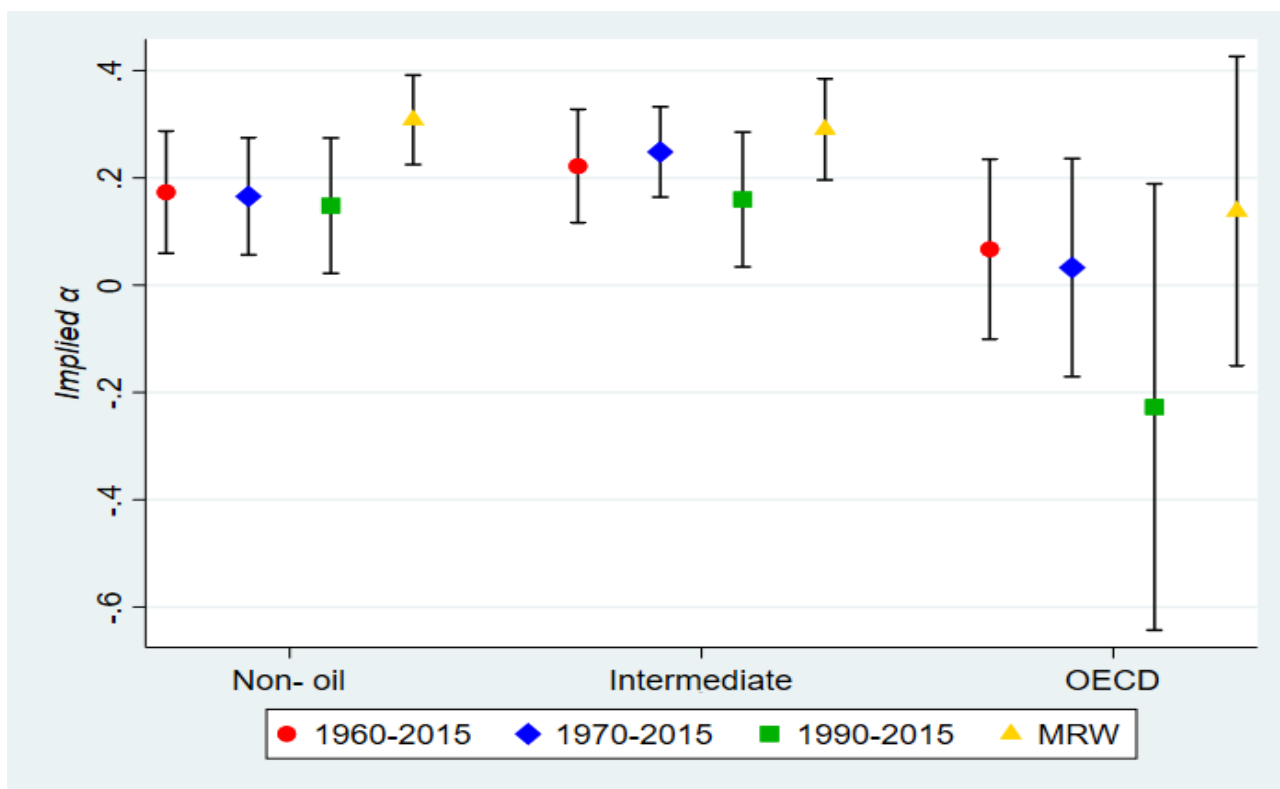
Figure C 3: Augmented Solow model, eq.2, confidence interval of human capital share (*Implied β*)
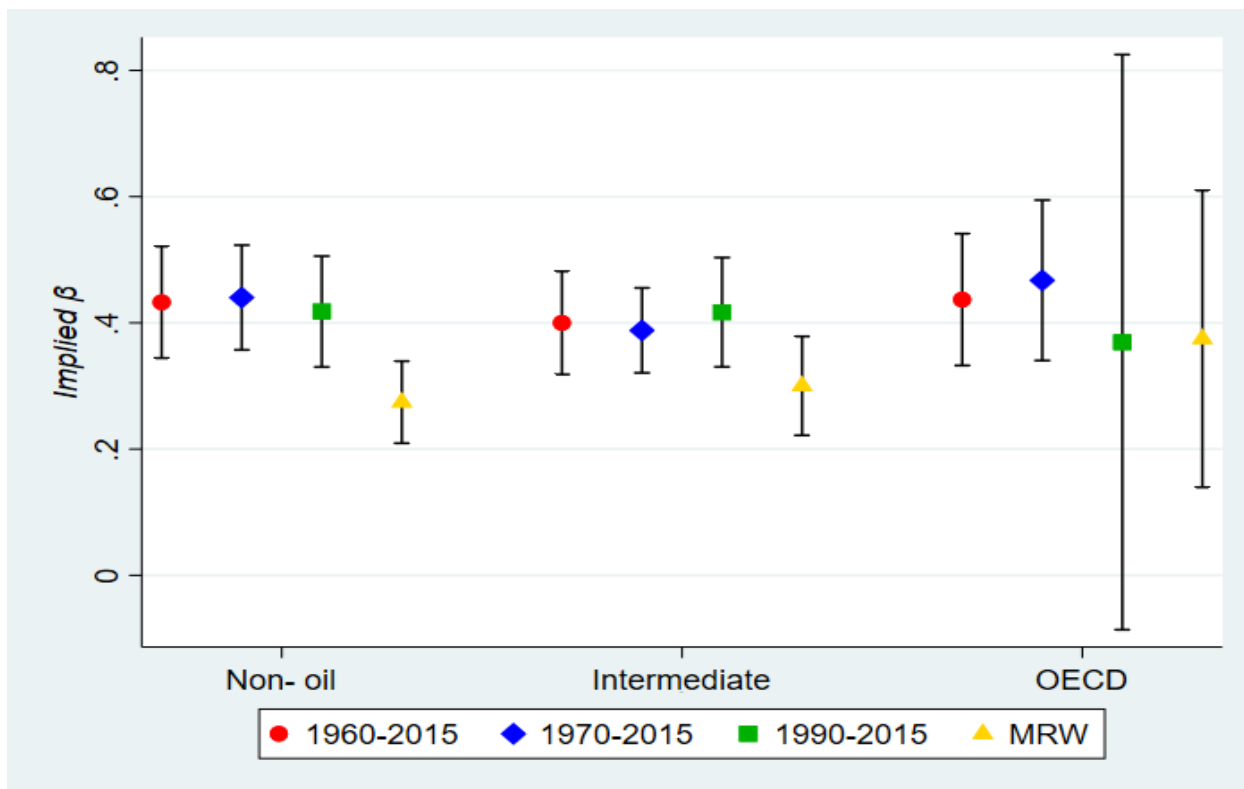
C.3 Conditional Convergence

In Figures C.4-C.6 the confidence interval of convergence rate (*Implied λ*), physical capital share (*Implied a*) and human capital share (*Implied β*) are represented. Most of the *implied λ*, in Figure C.4, are lower than those of MRW and therefore they are smaller than the theoretical rate of convergence, which is about 2%. However, for the OECD countries in the periods 1960-2015 and 1970-2015, the *implied λ* are close to 2%. Furthermore, in Figures C.5, *implied a*'s are smaller than those of MRW and close to 0.2 but they become insignificant for the OECD countries in the periods 1970-2015 and 1990-2015. About *implied β*'s, it is observed that they are higher than MRW's *implied β*'s but they become insignificant for the period 1990-2015 (it is significant in MRW).

Figure C 4: Conditional convergence on *lns*, *ln(n+g+δ)* and *lned*: eq.3, confidence interval of convergence rate (*Implied λ*)

Figure C 5: Conditional convergence on *lns*, *ln(n+g+δ)* and *lned*: eq.3, confidence interval of physical capital share (*Implied a*)
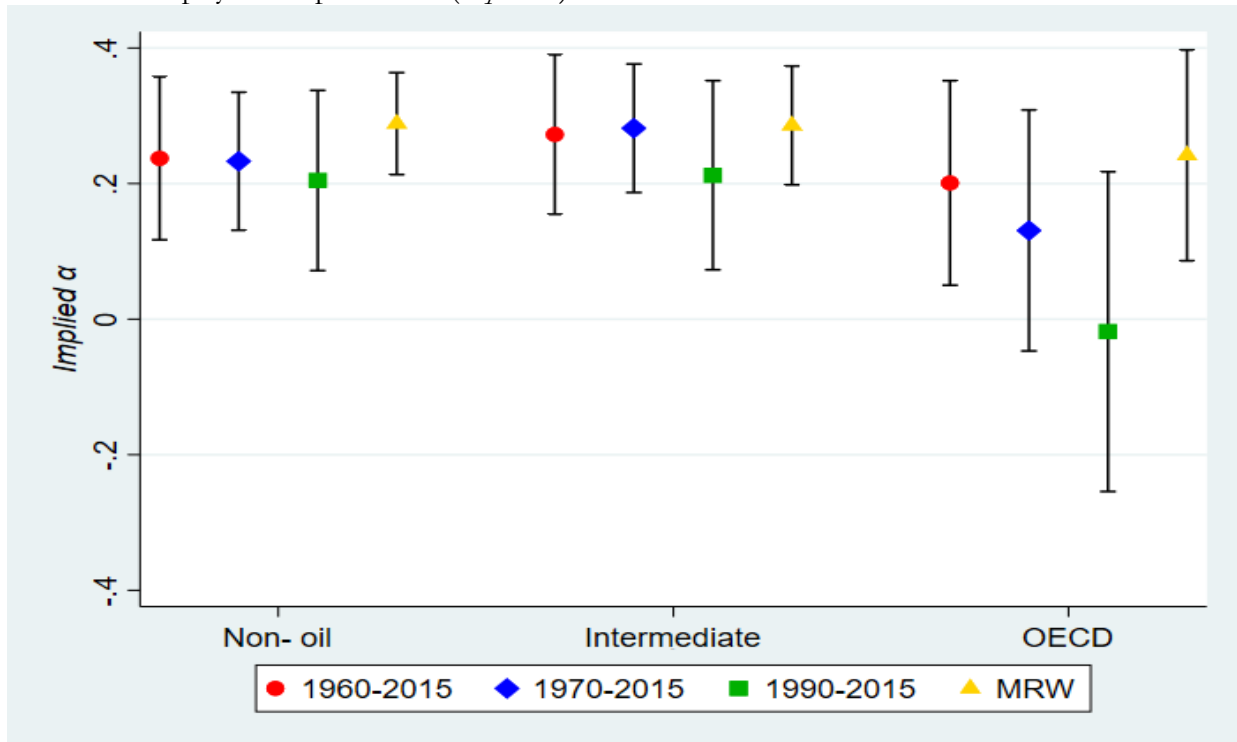
Figure C 6: Conditional convergence on *lns*, *ln(n+g+δ)* and *lned*: eq.3, confidence interval of human capital share (*Implied β*)
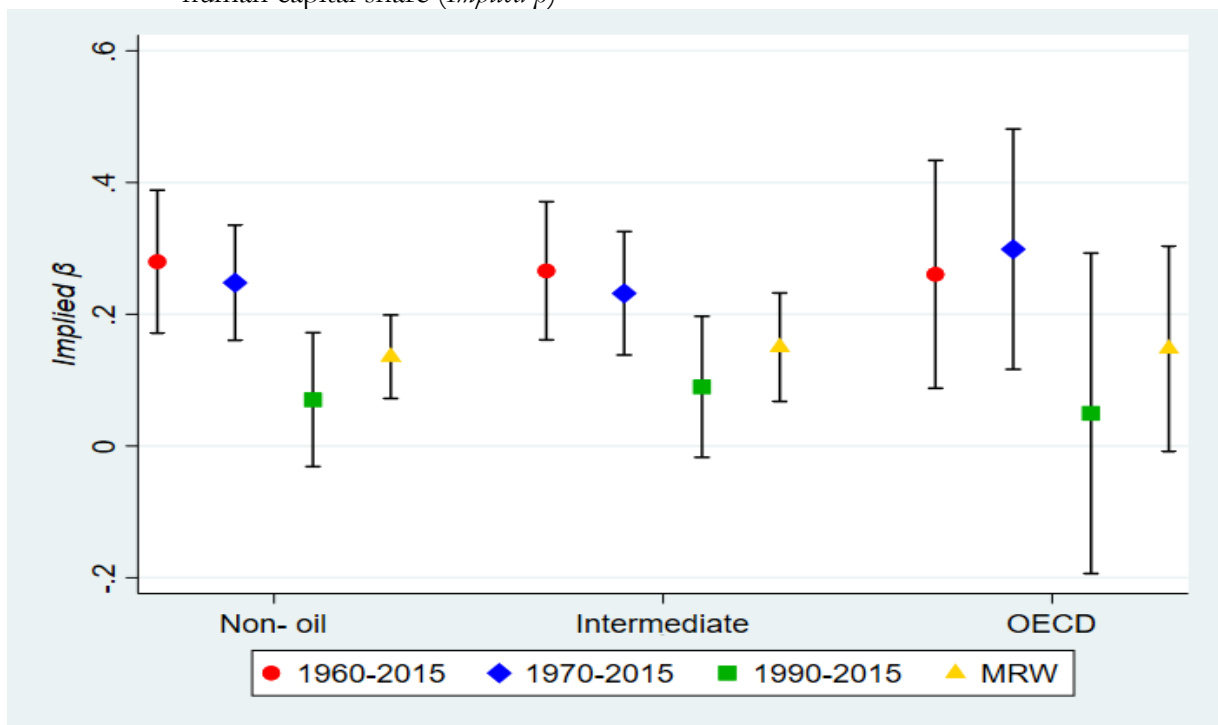
Appendix D: Countries in each of the samples

Table D 1: List of Countries included in each of the samples.

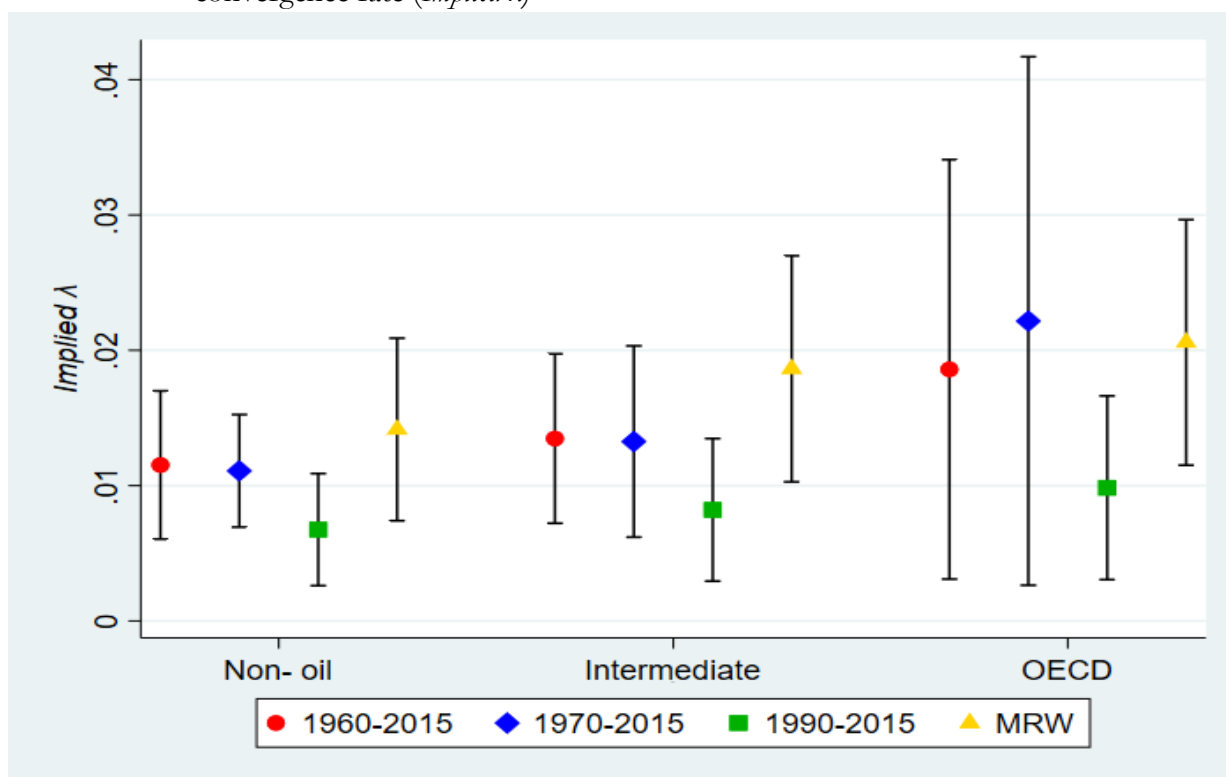| No	Country	N	I 1960	I 1970	I 1990	O	MRW N	MRW I	MRW O
1	Albania	1	0	0	1	0	0	0	0
2	Algeria	0	0	0	0	0	1	1	0
3	Angola	0	0	0	0	0	1	0	0
4	Argentina	1	1	1	1	0	1	1	0
5	Armenia	1	0	0	1	0	0	0	0
6	Australia	1	1	1	1	1	1	1	1
7	Austria	1	1	1	1	1	1	1	1
8	Bahrain	1	0	0	0	0	0	0	0
9	Bangladesh	1	1	1	1	0	1	1	0
10	Barbados	1	0	0	0	0	0	0	0
11	Belgium	1	1	1	1	1	1	1	1
12	Belize	1	0	0	1	0	0	0	0
13	Benin	1	0	0	1	0	1	0	0
14	Bolivia	1	1	1	1	0	1	1	0
15	Botswana	1	0	0	0	0	1	1	0
16	Brazil	1	1	1	1	0	1	1	0
17	Brunei Darussalam	1	0	0	0	0	0	0	0
18	Bulgaria	1	0	0	1	0	0	0	0
19	Burkina	0	0	0	0	0	1	0	0
20	Burma	1	0	1	1	0	1	1	0
21	Burundi	1	1	1	1	0	1	0	0
22	Cambodia	1	0	1	1	0	0	0	0
23	Cameroon	1	1	1	1	0	1	1	0
24	Canada	1	1	1	1	1	1	1	1
25	Central African Republic	1	0	0	1	0	1	0	0
26	Chad	0	0	0	0	0	1	0	0
27	Chile	1	1	1	1	1	1	1	0
28	China	1	0	0	1	0	0	0	0
29	China, Macao SAR	1	0	0	0	0	0	0	0
30	Colombia	1	1	1	1	1	1	1	0
31	Congo	0	0	0	0	0	1	0	0
32	Costa Rica*	1	0	0	1	1	1	1	0
33	Croatia	1	0	0	1	0	0	0	0
No	Country	N	I 1960	I 1970	I 1990	O	MRW N	MRW I	MRW O
34	Cyprus	1	0	0	0	0	0	0	0

No	Country	N	I 1960	I 1970	I 1990	O	MRW N	MRW I	MRW O
35	Czech Republic	1	0	0	1	1	0	0	0
36	Denmark	1	1	1	1	1	1	1	1
37	Dominican Republic	1	1	1	1	0	1	1	0
38	Ecuador	1	1	1	1	0	1	1	0
39	Egypt	1	1	1	1	0	1	0	0
40	El Salvador	1	1	1	1	0	1	1	0
41	Estonia	1	0	0	1	1	0	0	0
42	Ethiopia	0	0	0	0	0	1	1	0
43	Fiji	1	0	0	0	0	0	0	0
44	Finland	1	1	1	1	1	1	1	1
45	France	1	1	1	1	1	1	1	1
46	Gambia	1	0	0	0	0	0	0	0
47	Germany	1	1	1	1	1	1	1	1
48	Ghana	1	1	1	1	0	1	0	0
49	Greece	1	1	1	1	1	1	1	1
50	Guatemala	1	1	1	1	0	1	1	0
51	Haiti	1	1	1	1	0	1	1	0
52	Honduras	1	1	1	1	0	1	1	0
53	Hong Kong	1	0	0	1	0	1	1	0
54	Hungary	1	0	0	1	1	0	0	0
55	Iceland	1	0	0	0	0	0	0	0
56	India	1	1	1	1	0	1	1	0
57	Indonesia	1	1	1	1	0	1	1	0
58	Ireland	1	1	1	1	1	1	1	1
59	Israel	1	1	1	1	1	1	1	0
60	Italy	1	1	1	1	1	1	1	1
61	Ivory Coast	1	1	1	1	0	1	1	0
62	Jamaica	1	0	0	1	0	1	1	0
63	Japan	1	1	1	1	1	1	1	1
64	Jordan	1	0	0	1	0	1	1	0
65	Kazakhstan	1	0	0	1	0	0	0	0
66	Kenya	1	1	1	1	0	1	1	0
67	Kyrgyzstan	1	0	0	1	0	0	0	0
68	Lao	1	0	0	1	0	0	0	0
69	Latvia	1	0	0	1	1	0	0	0
70	Lesotho	1	0	0	0	0	0	0	0
71	Liberia	1	0	0	1	0	1	0	0
72	Lithuania	1	0	0	1	1	0	0	0
No	Country	N	I 1960	I 1970	I 1990	O	MRW N	MRW I	MRW O
73	Luxembourg	1	0	0	0	0	0	0	0
74	Madagascar	0	0	0	0	0	1	1	0
75	Malawi	1	1	1	1	0	1	1	0
76	Malaysia	1	1	1	1	0	1	1	0

No	Country	N	I 1960	I 1970	I 1990	O	MRW N	MRW I	MRW O
77	Maldives	1	0	0	0	0	0	0	0
78	Mali	1	1	1	1	0	1	1	0
79	Malta	1	0	0	0	0	0	0	0
80	Mauritania	1	0	0	1	0	1	0	0
81	Mauritius	1	0	0	0	0	0	0	0
82	Mexico	1	1	1	1	1	1	1	0
83	Mongolia	1	0	0	1	0	0	0	0
84	Morocco	1	1	1	1	0	1	1	0
85	Mozambique	1	1	1	1	0	1	0	0
86	Namibia	1	0	0	0	0	0	0	0
87	Nepal	1	1	1	1	0	1	0	0
88	Netherlands	1	1	1	1	1	1	1	1
89	New Zealand	1	1	1	1	1	1	1	1
90	Nicaragua	1	0	0	1	0	1	1	0
91	Niger	1	1	1	1	0	1	0	0
92	Nigeria	0	0	0	0	0	1	1	0
93	Norway	1	1	1	1	1	1	1	1
94	Pakistan	1	1	1	1	0	1	1	0
95	Panama	1	0	0	1	0	1	1	0
96	Papua New Guinea	0	0	0	0	0	1	0	0
97	Paraguay	1	0	1	1	0	1	1	0
98	Peru	1	1	1	1	0	1	1	0
99	Philippines	1	1	1	1	0	1	1	0
100	Poland	1	0	0	1	1	0	0	0
101	Portugal	1	1	1	1	1	1	1	1
102	Qatar	1	0	0	0	0	0	0	0
103	Republic of Korea	1	1	1	1	1	1	1	0
104	Republic of Moldova	1	0	0	1	0	0	0	0
105	Romania	1	0	0	1	0	0	0	0
106	Russian Federation	1	0	0	1	0	0	0	0
107	Rwanda	1	1	1	1	0	1	0	0
108	Senegal	1	1	1	1	0	1	1	0
No	Country	N	I 1960	I 1970	I 1990	O	MRW N	MRW I	MRW O
109	Serbia	1	0	0	1	0	0	0	0
110	Sierra Leone	1	0	1	1	0	1	0	0
111	Singapore	1	0	1	1	0	1	1	0
112	Slovakia	1	0	0	1	1	0	0	0
113	Slovenia	1	0	0	1	1	0	0	0
114	Somalia	0	0	0	0	0	1	0	0
115	South Africa	1	1	1	1	0	1	1	0

116	Spain	1	1	1	1	1	1	1	1
117	Sri Lanka	1	1	1	1	0	1	1	0
118	Sudan	1	0	1	1	0	1	0	0
119	Sweden	1	1	1	1	1	1	1	1
120	Switzerland	1	1	1	1	1	1	1	1
121	Syrian Arab Republic	1	1	1	1	0	1	1	0
122	Tajikistan	1	0	0	1	0	0	0	0
123	Tanzania	1	1	1	1	0	1	1	0
124	Thailand	1	1	1	1	0	1	1	0
125	Togo	1	0	1	1	0	1	0	0
126	Trinidad and Tobago	1	0	0	0	0	1	1	0
127	Tunisia	1	1	1	1	0	1	1	0
128	Turkey	1	1	1	1	1	1	1	1
129	Uganda	1	1	1	1	0	1	0	0
130	Ukraine	1	0	0	1	0	0	0	0
131	United Kingdom	1	1	1	1	1	1	1	1
132	United States	1	1	1	1	1	1	1	1
133	Uruguay	1	1	1	1	0	1	1	0
134	Venezuela	0	0	0	0	0	1	1	0
135	Vietnam	1	0	0	1	0	0	0	0
136	Yemen	1	0	0	1	0	0	0	0
137	Zaire	1	0	0	1	0	1	0	0
138	Zambia	1	1	1	1	0	1	1	0
139	Zimbabwe	1	1	1	1	0	1	1	0

Note:

N, I and O denote the Non-oil, Intermediate and OECD samples.

When countries belong to dataset take the value 1, otherwise they take the value 0.

* Costa Rica belongs to the OECD dataset only for the 1990-2015 period.