

Appendix

This document contains estimation methods and regression results, including sensitivity analysis for the results found in:

Wilson, S. E. Chasing Success: Health Sector Aid and Mortality, *World Development* (2011), doi:10.1016/j.worlddev.2011.07.021

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Variable Definitions

The following is a key to variables used in the output tables listed in this Appendix :

lnimr: natural log of the infant mortality (IMR) rate (deaths in first year of life per 1,000 live births)

lncmr: natural log of the child mortality (CMR) rate (deaths in first 5 years of life)

lnlifex: natural log of life expectancy at birth (e_0)

ad5pc: DAH spending per capita over previous five years

ad5pc_2: Square of **ad5pc**

lnad5pc: natural log of DAH spending per capita over previous five years

lnwt5pc: natural log of water aid per capita over previous five years

lnal5pc: natural log of all other aid over previous five years

lnigdp5: real GDP per capita over previous 5 year period

lnipop: natural log of recipient country population

ipolity2: Polity2 score

t5: time (in 5 year increments)

The following definitions apply in Donor Type Models

lnad15pc: natural log of DAH for donor type 1: Bi-laterals

lnad25pc: natural log of DAH for donor type 2: multilaterals

The following definitions apply in Sub-Sector Models

lnad15pc: natural log of DAH for sub-sector 1: Administration

lnad25pc: natural log of DAH for sub-sector 1: Training

lnad35pc: natural log of DAH for sub-sector 1: Infrastructure

lnad45pc: natural log of DAH for sub-sector 1: Basic Health Care

lnad55pc: natural log of DAH for sub-sector 1: Nutrition

lnad65pc: natural log of DAH for sub-sector 1: HIV/AIDS and other STDs

lnad75pc: natural log of DAH for sub-sector 1: Other Infectious Disease

lnad85pc: natural log of DAH for sub-sector 1: Family Planning

lnad95pc: natural log of DAH for sub-sector 1: Non-Specific

Note: lags of variables (in 5 year increments) are noted by **variablename_l**

See text for additional information on variable definitions

Estimation Methods

As discussed in the text, the population mortality rate M_{it} follows a trajectory over time, where countries are indexed by i and time periods (in five year increments) by t . Other variables shift this trajectory up and down; these include the primary variable of interest, DAH_{it} and control variables, which include other forms of aid, GDP, population, and Polity2 (these are all components of the vector $\mathbf{X}_{it}$). The mortality trajectory is then approximated by the following linear model:

$$M_{it} = \beta_0 + \beta_{1i}t + \beta_2DAH_{it} + \mathbf{X}_{it}\boldsymbol{\beta}_3 + \beta_4M_{it-1} + u_i + e_{it}$$

Other factors can also affect shift the mortality trajectory, as shown above. These include the lagged value of the dependent variable and an unobserved country effect, u_i , which varies across countries but is constant over time. This term captures the host of unobserved economic, political and cultural determinants of mortality and significantly reduces problems with omitted variable bias. The residual, e_{it} , is an independent error process. Finally, in most models the slope of the trajectory, β_{1i} , is assumed to be common across countries ($\beta_{1i} = \beta_1$). As specified above, however, it is possible to allow the slope to vary across countries (similar to the way that the u_i term allows for variation in intercepts).

The following models can be estimated as special cases of the general model above:

Static Models

1. *Bi-variate OLS* ($\beta_{1i} = \beta_1, \beta_3 = 0, \beta_4 = 0, u_i = 0$). This is a simple OLS regression model of mortality on DAH without any further controls.
2. *Multi-variate OLS* ($\beta_{1i} = \beta_1, \beta_4 = 0, u_i = 0$). This includes the complete set of explanatory variable including the time trend, but no lagged dependent variable.

Unobserved heterogeneity models

3. *First difference model* ($\beta_{1i} = \beta_1, \beta_4 = 0$). The dependent variable and each independent variable is differenced, meaning the previous value is subtracted from the current value (e.g., $x_{it} - x_{it-1}$). In this specification, the country effects, u_i , and the time trend t , are present in the model, but they are swept away by the differencing process.

4. *Random effects model* ($\beta_{1i} = \beta_1, \beta_4 = 0$). This model treats the unobserved country effects, u_i , as random draws from a normal distribution. It is estimated by maximum likelihood and is justified for large samples. Coefficient estimates, however, are biased if the unobserved effects are correlated with the explanatory variable, which will often be the case.

5. *Fixed effects model* ($\beta_{1i} = \beta_1, \beta_4 = 0$). This model treats the country effects as fixed parameters which can be estimated by OLS after subtracting the country-specific mean for each variable. It is equivalent to including a dummy variable for each country. Probably the most attractive feature of this model is that correlation between u_i and other explanatory variables does not cause bias.

Dynamic Models

6. *Lagged dependent variable model* ($\beta_{1i} = \beta_1, u_i = 0$). This model has no fixed effect and a common time trend. However, the inclusion of the lagged dependent variable often has similar consequences to including fixed effects since both approaches involve shifting the time trajectory based on country-specific unobservables.

7. *Dynamic panel model* ($\beta_{1i} = \beta_1$). This model captures the full dynamic specification above except that the slope is assumed constant. As Nickel (1981) showed, however, estimates of

parameters are biased. However, Monte Carlo simulations by Judson and Owen (1999) suggest the bias is mostly a problem with respect to β_4 , a parameter of little interest here.

The dynamic panel model will be estimated two ways. The first approach is to use the simple fixed effects model with OLS, which will be done here. Second, GMM estimation using the common Arellano-Bond (1991) estimator is feasible. The Arellano-Bond approach takes first differences of the data and then uses lagged values of the variables as instrumental variables. This is a highly effective way to account for the obvious endogeneity of many of the variables in the model, including DAH, but the usual cost of instrumental variable regression, including GMM, is much higher standard errors. The Arellano-Bond estimates are consistent, but are designed for large-N studies. The small-sample properties of these estimators are not well known. Thus we have a tradeoff of a reduction in endogeneity bias at the cost of precision. The Arellano-Bond estimator also treats slope coefficients as fixed, as do the previous models.

8. *Latent Growth Model* ($\beta_4 = 0$). This last model is part of a class of models that go by many names including random coefficient models, mixed models, hierarchical linear models and multi-level models. Its strength is the highly flexible functional form that allows both random intercepts and random slopes. Furthermore, in the estimation results to follow, arbitrary correlation between the random effects in the model is allowed (and proves to be important). Latent growth models, however, also rely on large sample properties of maximum likelihood estimation for their justification and are not necessarily unbiased in small samples. They also include no lagged dependent model.

MAIN ESTIMATES: DAH Effectiveness (Infant Mortality)

Notes:

DAH spending (lnad5pc) reported in Table 1 for all models
Models 2, 6, 7a, 7b are reported in Table 2.

Model (1): Bi-variate OLS

Linear regression	Number of obs =	547
	F(1, 95) =	0.01
	Prob > F =	0.9261
	R-squared =	0.0001
	Root MSE =	.57695

(Std. Err. adjusted for 96 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc	-.0022826	.0245499	-0.09	0.926	-.0510204	.0464551
_cons	4.215864	.0693644	60.78	0.000	4.078159	4.35357

Model (2): Multi-variate OLS

Linear regression	Number of obs =	476
	F(7, 83) =	49.94
	Prob > F =	0.0000
	R-squared =	0.6548
	Root MSE =	.34012

(Std. Err. adjusted for 84 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc	.039193	.0165601	2.37	0.020	.0062556	.0721303
lnwt5pc	-.0179015	.0160117	-1.12	0.267	-.0497482	.0139451
lnal5pc	-.0139984	.0167747	-0.83	0.406	-.0473627	.0193659
lnigdp5	-.3704193	.0337877	-10.96	0.000	-.4376217	-.3032169
lnipop	-.0501531	.0231518	-2.17	0.033	-.096201	-.0041051
ipolity2	-.0087891	.0049785	-1.77	0.081	-.0186912	.001113
t5	-.0965325	.0128337	-7.52	0.000	-.1220582	-.0710067
_cons	8.371492	.4319429	19.38	0.000	7.512375	9.230609

Model (3): First Differences (OLS)

Linear regression

Number of obs = 392
 F(6, 83) = 5.74
 Prob > F = 0.0000
 R-squared = 0.0490
 Root MSE = .11189

(Std. Err. adjusted for 84 clusters in cc)

D.lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc D1.	.0066632	.003151	2.11	0.037	.000396	.0129305
lnwt5pc D1.	-.0007906	.0020118	-0.39	0.695	-.004792	.0032109
lnal5pc D1.	-.0090529	.0031564	-2.87	0.005	-.0153308	-.0027749
lnigdp5 D1.	-.095253	.0353465	-2.69	0.009	-.1655558	-.0249502
lnipop D1.	.1896118	.2139481	0.89	0.378	-.2359224	.6151461
ipolity2 D1.	.0012532	.0008938	1.40	0.165	-.0005246	.0030309
t5 D1.	(omitted)					
_cons	-.1446429	.0268894	-5.38	0.000	-.1981247	-.091161

Model (4): Fixed Effects

Fixed-effects (within) regression
 Group variable: cc

Number of obs = 476
 Number of groups = 84

R-sq: within = 0.6825
 between = 0.0012
 overall = 0.0080

Obs per group: min = 2
 avg = 5.7
 max = 6

corr(u_i, Xb) = -0.7945

F(7, 83) = 32.40
 Prob > F = 0.0000

(Std. Err. adjusted for 84 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc	.0290151	.0087095	3.33	0.001	.0116922	.0463379
lnwt5pc	-.0108708	.0071152	-1.53	0.130	-.0250227	.0032811
lnal5pc	-.024189	.0080785	-2.99	0.004	-.0402569	-.0081212
lnigdp5	-.1272372	.0583362	-2.18	0.032	-.2432655	-.0112089
lnipop	.4557747	.2623241	1.74	0.086	-.0659774	.9775267
ipolity2	.0014783	.0028185	0.52	0.601	-.0041277	.0070843
t5	-.173381	.0330795	-5.24	0.000	-.2391748	-.1075873
_cons	-1.367288	4.217915	-0.32	0.747	-9.756551	7.021974
sigma_u	.92017101					
sigma_e	.16043648					
rho	.97049719	(fraction of variance due to u_i)				

Model (5): Random Effects

Random-effects GLS regression Number of obs = 476
Group variable: cc Number of groups = 84

R-sq: within = 0.6570 Obs per group: min = 2
 between = 0.6475 avg = 5.7
 overall = 0.6373 max = 6

Random effects u_i ~ Gaussian Wald chi2(7) = 262.37
corr(u_i, X) = 0 (assumed) Prob > chi2 = 0.0000

(Std. Err. adjusted for 84 clusters in cc)

lnimr	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
lnad5pc	.0339081	.0085254	3.98	0.000	.0171986	.0506176
lnwt5pc	-.0084184	.0069091	-1.22	0.223	-.0219599	.0051232
lnal5pc	-.0275654	.0085752	-3.21	0.001	-.0443726	-.0107582
lnigdp5	-.2730681	.045836	-5.96	0.000	-.3629049	-.1832313
lnipop	-.0440261	.0238337	-1.85	0.065	-.0907393	.0026871
ipolity2	-.0022572	.0028228	-0.80	0.424	-.0077898	.0032754
t5	-.1047361	.0124035	-8.44	0.000	-.1290464	-.0804258
_cons	7.581582	.4450681	17.03	0.000	6.709264	8.453899
sigma_u	.30056649					
sigma_e	.16043648					
rho	.7782577	(fraction of variance due to u_i)				

Model (6): OLS w/ Lagged Dependent Variable

Linear regression Number of obs = 470
F(8, 83) = 211.07
Prob > F = 0.0000
R-squared = 0.8636
Root MSE = .21428

(Std. Err. adjusted for 84 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnimr_l	.694303	.1094254	6.34	0.000	.4766604	.9119457
lnad5pc	.005251	.0099385	0.53	0.599	-.0145163	.0250183
lnwt5pc	-.0046002	.0078361	-0.59	0.559	-.0201858	.0109855
lnal5pc	-.0245933	.0154061	-1.60	0.114	-.0552354	.0060488
lnigdp5	-.1558688	.038237	-4.08	0.000	-.2319207	-.079817
lnipop	-.0319717	.0117259	-2.73	0.008	-.055294	-.0086494
ipolity2	-.0044421	.0023438	-1.90	0.062	-.0091038	.0002197
t5	-.0194802	.0135214	-1.44	0.153	-.0463739	.0074134
_cons	3.165202	.927275	3.41	0.001	1.320889	5.009515

Model (7a): Dynamic Panel Model (Fixed Effects)

Fixed-effects (within) regression
Group variable: cc
R-sq: within = 0.7678
 between = 0.0103
 overall = 0.0573
corr(u_i, Xb) = -0.7008
Number of obs = 470
Number of groups = 84
Obs per group: min = 2
 avg = 5.6
 max = 6
F(8,83) = 55.16
Prob > F = 0.0000

(Std. Err. adjusted for 84 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnimr_l	.31554	.0965146	3.27	0.002	.1235763	.5075036
lnad5pc	.0147364	.0078037	1.89	0.062	-.0007849	.0302576
lnwt5pc	-.0099135	.0057695	-1.72	0.089	-.0213888	.0015619
lnal5pc	-.028945	.0096802	-2.99	0.004	-.0481985	-.0096916
lnigdp5	-.0436184	.0427063	-1.02	0.310	-.1285594	.0413227
lnipop	.3836047	.2079609	1.84	0.069	-.0300211	.7972306
ipolity2	.0007683	.0022454	0.34	0.733	-.0036977	.0052344
t5	-.1284254	.0329468	-3.90	0.000	-.1939553	-.0628956
_cons	-2.373523	3.145756	-0.75	0.453	-8.630304	3.883258
sigma_u	.77580996					
sigma_e	.13778787					
rho	.96942097	(fraction of variance due to u_i)				

Model (7b): Dynamic Panel Model (Arellano-Bond)

Arellano-Bond dynamic panel-data estimation
Group variable: cc
Time variable: t5
Number of obs = 309
Number of groups = 83
Obs per group: min = 1
 avg = 3.722892
 max = 4
Number of instruments = 29
Wald chi2(7) = 914.42
Prob > chi2 = 0.0000

Two-step results

(Std. Err. adjusted for clustering on cc)

lnimr	Coef.	WC-Robust Std. Err.	z	P> z	[95% Conf. Interval]	
lnimr L1.	.7865414	.0867839	9.06	0.000	.6164481	.9566347
lnad5pc	-.007374	.0087148	-0.85	0.397	-.0244546	.0097066
lnwt5pc	.000535	.0139826	0.04	0.969	-.0268705	.0279405
lnal5pc	.0157578	.0156274	1.01	0.313	-.0148714	.046387
lnigdp5	-.3163388	.1292524	-2.45	0.014	-.569669	-.0630087
ipolity2	-.0024467	.0054616	-0.45	0.654	-.0131512	.0082579
lnipop	-.0506424	.1173312	-0.43	0.666	-.2806073	.1793225
_cons	4.111502	2.035432	2.02	0.043	.1221298	8.100875

Instruments for differenced equation

GMM-type: L(2/3).lnimr L(2/2).lnad5pc L(2/2).lnwt5pc L(2/2).lnal5pc L(2/2).lnigdp5 L(2/2).ipolity2

Standard: D.lnipop

Instruments for level equation

Standard: _cons

Model 8: Latent Growth Model

Mixed-effects ML regression
Group variable: cc

Number of obs = 476
Number of groups = 84

Obs per group: min = 2
avg = 5.7
max = 6

Log likelihood = 269.99659

Wald chi2(7) = 211.29
Prob > chi2 = 0.0000

lnimr	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
lnad5pc	.0038149	.0038532	0.99	0.322	-.0037373	.0113671
lnwt5pc	.0014454	.003024	0.48	0.633	-.0044815	.0073723
lnal5pc	-.0044433	.0038161	-1.16	0.244	-.0119228	.0030361
lnigdp5	-.1430816	.0228715	-6.26	0.000	-.1879089	-.0982543
lnipop	-.0480747	.0221236	-2.17	0.030	-.0914362	-.0047132
ipolity2	.0006909	.0012441	0.56	0.579	-.0017475	.0031292
t5	-.112191	.0100612	-11.15	0.000	-.1319106	-.0924714
_cons	6.555808	.3946341	16.61	0.000	5.782339	7.329277

Random-effects Parameters	Estimate	Std. Err.	[95% Conf. Interval]	
cc: Unstructured				
sd(t5)	.0839747	.0068892	.0715017	.0986236
sd(_cons)	.3369131	.0285431	.2853676	.3977692
corr(t5,_cons)	-.2363338	.1277114	-.4668266	.0242253
sd(Residual)	.0674652	.0027907	.0622114	.0731627

LR test vs. linear regression: chi2(3) = 856.07 Prob > chi2 = 0.0000

Note: LR test is conservative and provided only for reference.

MAIN ESTIMATES: DAH Effectiveness (Child Mortality)

Notes:

DAH spending (lnad5pc) reported in Table 1 for all models

Model (1): Bi-variate OLS

Linear regression	Number of obs =	547
	F(1, 95) =	0.00
	Prob > F =	0.9574
	R-squared =	0.0000
	Root MSE =	.69029

(Std. Err. adjusted for 96 clusters in cc)

lncmr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc	-.0016562	.0309176	-0.05	0.957	-.0630354	.059723
_cons	4.57434	.0851429	53.73	0.000	4.40531	4.743371

Model (2): Multi-variate OLS

Linear regression	Number of obs =	476
	F(7, 83) =	52.84
	Prob > F =	0.0000
	R-squared =	0.6599
	Root MSE =	.40465

(Std. Err. adjusted for 84 clusters in cc)

lncmr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc	.041724	.0200731	2.08	0.041	.0017993	.0816487
lnwt5pc	-.0155494	.0191058	-0.81	0.418	-.05355	.0224512
lnal5pc	-.0135417	.0200518	-0.68	0.501	-.053424	.0263407
lnigdp5	-.4530963	.0394577	-11.48	0.000	-.531576	-.3746166
lnipop	-.0574818	.0270915	-2.12	0.037	-.1113658	-.0035978
ipolity2	-.0104524	.0059117	-1.77	0.081	-.0222105	.0013058
t5	-.1093521	.0149216	-7.33	0.000	-.1390305	-.0796736
_cons	9.552418	.5021486	19.02	0.000	8.553665	10.55117

Model (3): First Differences (OLS)

Linear regression

Number of obs = 392
 F(6, 83) = 5.26
 Prob > F = 0.0001
 R-squared = 0.0450
 Root MSE = .12775

(Std. Err. adjusted for 84 clusters in cc)

D.lncmr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc D1.	.0072036	.0035371	2.04	0.045	.0001683	.0142388
lnwt5pc D1.	-.001013	.0023025	-0.44	0.661	-.0055927	.0035666
lnal5pc D1.	-.0110893	.0037799	-2.93	0.004	-.0186073	-.0035713
lnigdp5 D1.	-.0965797	.0383302	-2.52	0.014	-.172817	-.0203425
lnipop D1.	.2203683	.2378008	0.93	0.357	-.2526079	.6933446
ipolity2 D1.	.0013604	.0010332	1.32	0.192	-.0006946	.0034154
t5 D1.	(omitted)					
_cons	-.1640328	.0301011	-5.45	0.000	-.2239027	-.1041629

Model (4): Fixed Effects

Fixed-effects (within) regression
 Group variable: cc

Number of obs = 476
 Number of groups = 84

R-sq: within = 0.6819
 between = 0.0016
 overall = 0.0051

Obs per group: min = 2
 avg = 5.7
 max = 6

corr(u_i, Xb) = -0.7834

F(7, 83) = 32.98
 Prob > F = 0.0000

(Std. Err. adjusted for 84 clusters in cc)

lncmr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc	.0319359	.0096148	3.32	0.001	.0128124	.0510593
lnwt5pc	-.013146	.0079659	-1.65	0.103	-.02899	.0026979
lnal5pc	-.0277208	.009079	-3.05	0.003	-.0457786	-.0096631
lnigdp5	-.1239541	.0625803	-1.98	0.051	-.2484238	.0005155
lnipop	.5262773	.2845052	1.85	0.068	-.039592	1.092147
ipolity2	.0021193	.0032432	0.65	0.515	-.0043312	.0085699
t5	-.1976618	.0365882	-5.40	0.000	-.2704343	-.1248893
_cons	-2.059201	4.561425	-0.45	0.653	-11.13169	7.013289
sigma_u	1.0814562					
sigma_e	.18058932					
rho	.97287175	(fraction of variance due to u_i)				

Model (5): Random Effects

Random-effects GLS regression Number of obs = 476
Group variable: cc Number of groups = 84

R-sq: within = 0.6526 Obs per group: min = 2
 between = 0.6567 avg = 5.7
 overall = 0.6364 max = 6

Random effects u_i ~ Gaussian Wald chi2(7) = 264.25
corr(u_i, X) = 0 (assumed) Prob > chi2 = 0.0000

(Std. Err. adjusted for 84 clusters in cc)

lncmr	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
lnad5pc	.0376426	.0095461	3.94	0.000	.0189326	.0563525
lnwt5pc	-.009282	.0077846	-1.19	0.233	-.0245397	.0059756
lnal5pc	-.0314584	.0098378	-3.20	0.001	-.0507401	-.0121767
lnigdp5	-.3081396	.0529249	-5.82	0.000	-.4118704	-.2044087
lnipop	-.0476447	.0286624	-1.66	0.096	-.103822	.0085326
ipolity2	-.0023216	.0032169	-0.72	0.470	-.0086266	.0039834
t5	-.1183538	.0141577	-8.36	0.000	-.1461023	-.0906052
_cons	8.343522	.5097399	16.37	0.000	7.34445	9.342594
sigma_u	.36020618					
sigma_e	.18058932					
rho	.79913585	(fraction of variance due to u_i)				

Model (6): OLS w/ Lagged Dependent Variable

Linear regression Number of obs = 470
F(8, 83) = 241.35
Prob > F = 0.0000
R-squared = 0.8590
Root MSE = .26131

(Std. Err. adjusted for 84 clusters in cc)

lncmr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lncmr_l	.8119689	.1225066	6.63	0.000	.5683081	1.05563
lnad5pc	.0022894	.0127159	0.18	0.858	-.023002	.0275807
lnwt5pc	.0001167	.0102529	0.01	0.991	-.0202759	.0205093
lnal5pc	-.0262103	.0176647	-1.48	0.142	-.0613448	.0089241
lnigdp5	-.2020877	.0430525	-4.69	0.000	-.2877174	-.1164579
lnipop	-.0365941	.0140471	-2.61	0.011	-.0645332	-.008655
ipolity2	-.0053704	.0027963	-1.92	0.058	-.0109321	.0001913
t5	-.0195231	.016672	-1.17	0.245	-.0526832	.0136369
_cons	3.471093	1.031382	3.37	0.001	1.419715	5.522471

Model (7a): Dynamic Panel Model (Fixed Effects)

Fixed-effects (within) regression Number of obs = 470
Group variable: cc Number of groups = 84

R-sq: within = 0.7640 Obs per group: min = 2
 between = 0.0069 avg = 5.6
 overall = 0.0428 max = 6

corr(u_i, Xb) = -0.6922 F(8,83) = 54.20
 Prob > F = 0.0000

(Std. Err. adjusted for 84 clusters in cc)

lncmr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lncmr_l	.3469891	.1037712	3.34	0.001	.1405923	.5533859
lnad5pc	.0163525	.0086151	1.90	0.061	-.0007827	.0334877
lnwt5pc	-.0122283	.0064054	-1.91	0.060	-.0249684	.0005118
lnal5pc	-.033038	.0107929	-3.06	0.003	-.0545047	-.0115714
lnigdp5	-.0311279	.0478066	-0.65	0.517	-.1262133	.0639575
lnipop	.4478764	.223434	2.00	0.048	.0034753	.8922776
ipolity2	.0013238	.0026498	0.50	0.619	-.0039466	.0065943
t5	-.1484829	.0356382	-4.17	0.000	-.2193659	-.0775999
_cons	-3.187031	3.40255	-0.94	0.352	-9.954567	3.580505
sigma_u	.92519671					
sigma_e	.15618625					
rho	.97229144	(fraction of variance due to u_i)				

Model (7b): Dynamic Panel Model (Arellano-Bond)

Arellano-Bond dynamic panel-data estimation Number of obs = 309
Group variable: cc Number of groups = 83
Time variable: t5

Obs per group: min = 1
 avg = 3.722892
 max = 4

Number of instruments = 29 Wald chi2(7) = 773.69
 Prob > chi2 = 0.0000

Two-step results

(Std. Err. adjusted for clustering on cc)

lncmr	Coef.	WC-Robust Std. Err.	z	P> z	[95% Conf. Interval]	
lncmr L1.	.7845288	.08623	9.10	0.000	.6155211	.9535366
lnad5pc	-.0063547	.0087349	-0.73	0.467	-.0234749	.0107655
lnwt5pc	.0041727	.0175878	0.24	0.812	-.0302988	.0386443
lnal5pc	.0152915	.018183	0.84	0.400	-.0203464	.0509295
lnigdp5	-.3371484	.1554979	-2.17	0.030	-.6419186	-.0323782
ipolity2	-.0027024	.0061365	-0.44	0.660	-.0147298	.0093249
lnipop	-.0714977	.1312313	-0.54	0.586	-.3287064	.185711
_cons	4.682508	2.323336	2.02	0.044	.1288525	9.236164

Instruments for differenced equation

GMM-type: L(2/3).lncmr L(2/2).lnad5pc L(2/2).lnwt5pc L(2/2).lnal5pc L(2/2).lnigdp5 L(2/2).ipolity2

Standard: D.lnipop

Instruments for level equation

Standard: _cons

Model 8: Latent Growth Model

Mixed-effects ML regression
Group variable: cc

Number of obs = 476
Number of groups = 84

Obs per group: min = 2
avg = 5.7
max = 6

Log likelihood = 200.82254

Wald chi2(7) = 204.77
Prob > chi2 = 0.0000

lncmr	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
lnad5pc	.003728	.0044292	0.84	0.400	-.0049531	.012409
lnwt5pc	.001611	.0034812	0.46	0.644	-.0052121	.008434
lnal5pc	-.0056436	.0043824	-1.29	0.198	-.014233	.0029457
lnigdp5	-.1516331	.0266187	-5.70	0.000	-.2038048	-.0994614
lnipop	-.0491419	.0265219	-1.85	0.064	-.1011238	.00284
ipolity2	.00065	.0014321	0.45	0.650	-.0021568	.0034568
t5	-.1271243	.0113777	-11.17	0.000	-.1494242	-.1048245
_cons	7.060674	.470408	15.01	0.000	6.138691	7.982657

Random-effects Parameters	Estimate	Std. Err.	[95% Conf. Interval]	
cc: Unstructured				
sd(t5)	.0943362	.0077604	.0802889	.1108413
sd(_cons)	.3952542	.0338882	.3341153	.4675807
corr(t5,_cons)	-.1040795	.1320424	-.3505671	.1558931
sd(Residual)	.0777264	.0032101	.0716826	.0842797

LR test vs. linear regression: chi2(3) = 883.10 Prob > chi2 = 0.0000

MAIN ESTIMATES: DAH Effectiveness (Life Expectancy)

Notes:

DAH spending (lnad5pc) reported in Table 1 for all models

Model (1): Bi-variate OLS

Linear regression	Number of obs = 563
	F(1, 97) = 0.01
	Prob > F = 0.9289
	R-squared = 0.0000
	Root MSE = .16763

(Std. Err. adjusted for 98 clusters in cc)

lnlifex	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc	-.0006093	.0068144	-0.09	0.929	-.0141341	.0129155
_cons	4.047765	.0194653	207.95	0.000	4.009132	4.086398

Model (2): Multi-variate OLS

Linear regression	Number of obs = 478
	F(7, 83) = 29.56
	Prob > F = 0.0000
	R-squared = 0.5092
	Root MSE = .11718

(Std. Err. adjusted for 84 clusters in cc)

lnlifex	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc	-.0052249	.005513	-0.95	0.346	-.01619	.0057402
lnwt5pc	.0022148	.0051256	0.43	0.667	-.0079799	.0124094
lnal5pc	.0010064	.0049031	0.21	0.838	-.0087457	.0107585
lnigdp5	.098087	.0096785	10.13	0.000	.0788369	.1173371
lnipop	.0167739	.0069355	2.42	0.018	.0029795	.0305684
ipolity2	.0028535	.0016099	1.77	0.080	-.0003485	.0060555
t5	.0140981	.0041961	3.36	0.001	.0057522	.022444
_cons	2.935721	.1400587	20.96	0.000	2.65715	3.214292

Model (3): First Differences (OLS)

Linear regression

Number of obs = 394
 F(6, 83) = 3.16
 Prob > F = 0.0076
 R-squared = 0.0629
 Root MSE = .0454

(Std. Err. adjusted for 84 clusters in cc)

D.lnlifex	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc D1.	-.0003846	.0010133	-0.38	0.705	-.0024	.0016307
lnwt5pc D1.	.0001056	.0009159	0.12	0.908	-.0017161	.0019273
lnal5pc D1.	.0033249	.0010732	3.10	0.003	.0011904	.0054594
lnigdp5 D1.	.0083763	.0147302	0.57	0.571	-.0209215	.0376742
lnipop D1.	.1925705	.0896819	2.15	0.035	.0141969	.3709442
ipolity2 D1.	.0003014	.0004089	0.74	0.463	-.0005119	.0011147
t5 D1.	(omitted)					
_cons	-.0026975	.0118768	-0.23	0.821	-.0263201	.0209251

Model (4): Fixed Effects

Fixed-effects (within) regression
 Group variable: cc

Number of obs = 478
 Number of groups = 84

R-sq: within = 0.3131
 between = 0.0680
 overall = 0.0834

Obs per group: min = 2
 avg = 5.7
 max = 6

corr(u_i, Xb) = -0.5214

F(7,83) = 17.21
 Prob > F = 0.0000

(Std. Err. adjusted for 84 clusters in cc)

lnlifex	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc	-.0046934	.0024523	-1.91	0.059	-.0095709	.0001841
lnwt5pc	.0039795	.0021336	1.87	0.066	-.0002641	.008223
lnal5pc	.0060278	.0028846	2.09	0.040	.0002905	.011765
lnigdp5	.0150057	.0244881	0.61	0.542	-.0337001	.0637115
lnipop	.0840294	.0694208	1.21	0.230	-.0540457	.2221045
ipolity2	.0009823	.001229	0.80	0.426	-.0014622	.0034267
t5	.0081999	.0102607	0.80	0.426	-.0122081	.0286079
_cons	2.51905	1.144667	2.20	0.031	.2423538	4.795746
sigma_u	.17458759					
sigma_e	.05938601					
rho	.89629655	(fraction of variance due to u_i)				

Model 8: Latent Growth Model

Mixed-effects ML regression
Group variable: cc

Number of obs = 478
Number of groups = 84

Obs per group: min = 2
avg = 5.7
max = 6

Log likelihood = 632.13544

Wald chi2(7) = 110.80
Prob > chi2 = 0.0000

lnlifex	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
lnad5pc	-.0003106	.0021439	-0.14	0.885	-.0045126	.0038915
lnwt5pc	-.000452	.0017009	-0.27	0.790	-.0037856	.0028816
lnal5pc	.0033204	.0020949	1.59	0.113	-.0007855	.0074264
lnigdp5	.0670259	.0090656	7.39	0.000	.0492575	.0847942
lnipop	.0241202	.0072597	3.32	0.001	.0098915	.0383488
ipolity2	.0007691	.0006755	1.14	0.255	-.0005549	.0020931
t5	.0135924	.0034663	3.92	0.000	.0067986	.0203861
_cons	3.057151	.1370741	22.30	0.000	2.788491	3.325812

Random-effects Parameters	Estimate	Std. Err.	[95% Conf. Interval]	
cc: Unstructured				
sd(t5)	.0263123	.0024115	.0219861	.0314899
sd(_cons)	.1255011	.0112339	.1053064	.1495686
corr(t5,_cons)	-.5529053	.0870662	-.7005297	-.3599013
sd(Residual)	.0387349	.0015759	.0357662	.04195

LR test vs. linear regression: chi2(3) = 563.00 Prob > chi2 = 0.0000

Note: LR test is conservative and provided only for reference.

```
. log close;
  name: <unnamed>
  log: C:\MyFiles\Projects\PLAID\Health\Healthy Aid Paper\Oxford\effects_main.log
  log type: text
  closed on: 19 Aug 2010, 17:09:54
```

MAIN ESTIMATES: DAH Allocation (Infant Mortality)

Notes: Model 2,6, 71, 7b, and 8 are reported in Table 4.

Model (2): Multi-variate OLS

Linear regression	Number of obs = 333
	F(6, 81) = 41.65
	Prob > F = 0.0000
	R-squared = 0.4410
	Root MSE = .89483

(Std. Err. adjusted for 82 clusters in cc)

lnadf5pc	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnimr	.6479412	.1798595	3.60	0.001	.2900772	1.005805
reduce	-.5018287	.1286562	-3.90	0.000	-.7578141	-.2458432
lnigdp5	.0480357	.086965	0.55	0.582	-.1249974	.2210689
lnipop	-.4002964	.0390119	-10.26	0.000	-.4779178	-.322675
polity2	.0338208	.0105393	3.21	0.002	.012851	.0547906
t5	.2823984	.0385183	7.33	0.000	.2057592	.3590377
_cons	4.529619	1.721698	2.63	0.010	1.10398	7.955257

Model (3): First Differences (OLS)

Linear regression	Number of obs = 246
	F(5, 77) = 3.05
	Prob > F = 0.0146
	R-squared = 0.0338
	Root MSE = 1.034

(Std. Err. adjusted for 78 clusters in cc)

D.lnadf5pc	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnimr D1.	1.60215	.4696545	3.41	0.001	.6669487	2.537352
reduce D1.	-.0756805	.1830623	-0.41	0.680	-.4402041	.2888432
lnigdp5 D1.	-.2765623	.439411	-0.63	0.531	-1.151541	.5984169
lnipop D1.	-1.217078	1.508355	-0.81	0.422	-4.220596	1.786441
polity2 D1.	-.0063669	.0120418	-0.53	0.599	-.0303453	.0176114
t5 D1.	(omitted)					
_cons	.6012901	.2163442	2.78	0.007	.1704938	1.032086

Model (4): Fixed Effects

Fixed-effects (within) regression
 Group variable: cc

Number of obs = 333
 Number of groups = 82

R-sq: within = 0.2322
 between = 0.4435
 overall = 0.3775

Obs per group: min = 1
 avg = 4.1
 max = 5

F(6,81) = 18.50
 Prob > F = 0.0000

corr(u_i, Xb) = -0.1765

(Std. Err. adjusted for 82 clusters in cc)

lnadf5pc	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnimr	.7582481	.3210257	2.36	0.021	.1195077	1.396989
reduce	-.2345347	.2103928	-1.11	0.268	-.6531503	.1840809
lnigdp5	-.0312156	.2961152	-0.11	0.916	-.6203919	.5579607
lnipop	-.3798112	1.024592	-0.37	0.712	-2.418428	1.658805
polity2	-.005127	.0099612	-0.51	0.608	-.0249466	.0146926
t5	.3936249	.1423892	2.76	0.007	.110315	.6769348
_cons	3.965403	16.33955	0.24	0.809	-28.54518	36.47599
sigma_u	.82428447					
sigma_e	.73661914					
rho	.55598659	(fraction of variance due to u_i)				

Model (5): Random Effects

Random-effects GLS regression
 Group variable: cc

Number of obs = 333
 Number of groups = 82

R-sq: within = 0.2135
 between = 0.5392
 overall = 0.4346

Obs per group: min = 1
 avg = 4.1
 max = 5

Random effects u_i ~ Gaussian
 Wald chi2(6) = 270.92
 Prob > chi2 = 0.0000

corr(u_i, X) = 0 (assumed)

(Std. Err. adjusted for 82 clusters in cc)

lnadf5pc	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
lnimr	.6645705	.1680989	3.95	0.000	.3351028	.9940382
reduce	-.3811929	.1431097	-2.66	0.008	-.6616828	-.100703
lnigdp5	.0241548	.110896	0.22	0.828	-.1931973	.2415069
lnipop	-.3990249	.0417048	-9.57	0.000	-.4807649	-.317285
polity2	.0227124	.0100333	2.26	0.024	.0030475	.0423773
t5	.3203262	.0362975	8.83	0.000	.2491844	.3914681
_cons	4.46481	1.906696	2.34	0.019	.7277558	8.201865
sigma_u	.57598256					
sigma_e	.73661914					
rho	.37942554	(fraction of variance due to u_i)				

Model (6): OLS w/ Lagged Dependent Variable

Linear regression

Number of obs = 333
 F(7, 81) = 63.57
 Prob > F = 0.0000
 R-squared = 0.5058
 Root MSE = .84266

(Std. Err. adjusted for 82 clusters in cc)

lnadf5pc	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc	.2806985	.0575041	4.88	0.000	.1662833	.3951136
lnimr	.4957052	.1485433	3.34	0.001	.2001506	.7912597
reduce	-.2768173	.1201555	-2.30	0.024	-.515889	-.0377455
lnigdp5	.0422727	.065183	0.65	0.518	-.0874211	.1719664
lnipop	-.2961522	.0333309	-8.89	0.000	-.3624703	-.229834
polity2	.022737	.0082504	2.76	0.007	.0063212	.0391527
t5	.2011269	.0394312	5.10	0.000	.1226712	.2795826
_cons	3.333992	1.20962	2.76	0.007	.9272283	5.740757

Model (7a): Dynamic Panel Model (Fixed Effects)

Fixed-effects (within) regression
 Group variable: cc

Number of obs = 333
 Number of groups = 82

R-sq: within = 0.2376
 between = 0.3101
 overall = 0.2977

Obs per group: min = 1
 avg = 4.1
 max = 5

corr(u_i, Xb) = -0.0439

F(7,81) = 15.48
 Prob > F = 0.0000

(Std. Err. adjusted for 82 clusters in cc)

lnadf5pc	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc	-.0673899	.0416863	-1.62	0.110	-.1503326	.0155528
lnimr	.7527602	.331014	2.27	0.026	.0941462	1.411374
reduce	-.2642216	.2210993	-1.20	0.236	-.7041399	.1756966
lnigdp5	-.020012	.3155986	-0.06	0.950	-.6479542	.6079301
lnipop	-.2585586	1.05957	-0.24	0.808	-2.366771	1.849654
polity2	-.0054995	.0099547	-0.55	0.582	-.0253064	.0143073
t5	.4000128	.1486896	2.69	0.009	.1041671	.6958584
_cons	2.035709	16.95944	0.12	0.905	-31.70825	35.77967
sigma_u	.91280824					
sigma_e	.7355154					
rho	.60632936	(fraction of variance due to u_i)				

ALTERNATE ESTIMATES - Definition of High Mortality Country: IMR > 25 (Infant Mortality)

Model (1): Bi-variate OLS

Linear regression

Number of obs = 550
F(1, 113) = 1.37
Prob > F = 0.2450
R-squared = 0.0047
Root MSE = .66052

(Std. Err. adjusted for 114 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc	-.0293168	.0250871	-1.17	0.245	-.0790189	.0203853
_cons	4.114224	.0788714	52.16	0.000	3.957966	4.270483

Model (2): Multi-variate OLS

Linear regression

Number of obs = 493
F(7, 97) = 57.04
Prob > F = 0.0000
R-squared = 0.6152
Root MSE = .41177

(Std. Err. adjusted for 98 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc	.0651521	.0227349	2.87	0.005	.0200296	.1102747
lnwt5pc	-.0156121	.0178974	-0.87	0.385	-.0511334	.0199092
lnal5pc	-.0195632	.0220643	-0.89	0.377	-.0633547	.0242282
lnigdp5	-.3905663	.0405628	-9.63	0.000	-.4710723	-.3100603
lnipop	-.0456862	.0267246	-1.71	0.091	-.0987272	.0073547
ipolity2	-.016954	.0060592	-2.80	0.006	-.0289797	-.0049282
t5	-.0985828	.0160919	-6.13	0.000	-.1305208	-.0666448
_cons	8.384914	.5006475	16.75	0.000	7.391268	9.378561

Model (3): First Differences (OLS)

Linear regression

Number of obs = 383
F(6, 97) = 3.35
Prob > F = 0.0048
R-squared = 0.1137
Root MSE = .10363

(Std. Err. adjusted for 98 clusters in cc)

D.lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc D1.	-.0000241	.0041342	-0.01	0.995	-.0082292	.0081811
lnwt5pc D1.	-.0019201	.0021664	-0.89	0.378	-.0062199	.0023797
lnal5pc D1.	-.0022179	.0032785	-0.68	0.500	-.0087248	.004289
lnigdp5 D1.	-.0937395	.0618381	-1.52	0.133	-.2164711	.0289921
lnipop D1.	.5170423	.1673792	3.09	0.003	.1848408	.8492437
ipolity2 D1.	-.000076	.0009525	-0.08	0.937	-.0019663	.0018144
t5 D1.	(omitted)					
_cons	-.1748593	.0228159	-7.66	0.000	-.2201425	-.129576

Model (4): Fixed Effects

Fixed-effects (within) regression
Group variable: cc

Number of obs = 493
Number of groups = 98

R-sq: within = 0.6901
between = 0.0028
overall = 0.0099

Obs per group: min = 2
avg = 5.0
max = 6

corr(u_i, Xb) = -0.8458

F(7,97) = 31.42
Prob > F = 0.0000

(Std. Err. adjusted for 98 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc	.0080605	.0089928	0.90	0.372	-.0097878	.0259088
lnwt5pc	-.0072919	.0076947	-0.95	0.346	-.0225639	.00798
lnal5pc	-.0093729	.0091014	-1.03	0.306	-.0274366	.0086909
lnigdp5	-.1368502	.0806542	-1.70	0.093	-.2969266	.0232261
lnipop	.6427413	.2176732	2.95	0.004	.2107202	1.074762
ipolity2	-.0010187	.0026304	-0.39	0.699	-.0062394	.004202
t5	-.1838427	.0296081	-6.21	0.000	-.2426066	-.1250788
_cons	-4.353703	3.627582	-1.20	0.233	-11.55345	2.846042
sigma_u	1.2055662					
sigma_e	.14940965					
rho	.98487291	(fraction of variance due to u_i)				

Model (5): Random Effects

Random-effects GLS regression
Group variable: cc

Number of obs = 493
Number of groups = 98

R-sq: within = 0.6567
between = 0.5676
overall = 0.5900

Obs per group: min = 2
avg = 5.0
max = 6

Random effects u_i ~ Gaussian
corr(u_i, X) = 0 (assumed)

Wald chi2(7) = 241.09
Prob > chi2 = 0.0000

(Std. Err. adjusted for 98 clusters in cc)

lnimr	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
lnad5pc	.013374	.010224	1.31	0.191	-.0066646	.0334127
lnwt5pc	-.0053731	.0072614	-0.74	0.459	-.0196052	.0088591
lnal5pc	-.0143206	.0086245	-1.66	0.097	-.0312243	.0025831
lnigdp5	-.3041922	.0567148	-5.36	0.000	-.4153512	-.1930332
lnipop	-.0280477	.0283546	-0.99	0.323	-.0836217	.0275264
ipolity2	-.0037922	.0024969	-1.52	0.129	-.0086859	.0011016
t5	-.0980508	.01203	-8.15	0.000	-.1216292	-.0744724
_cons	7.425877	.6200249	11.98	0.000	6.21065	8.641103
sigma_u	.39050626					
sigma_e	.14940965					
rho	.87230608	(fraction of variance due to u_i)				

Model (6): OLS w/ Lagged Dependent Variable

Linear regression

Number of obs = 405
F(8, 97) = 1506.61
Prob > F = 0.0000
R-squared = 0.9783
Root MSE = .09897

(Std. Err. adjusted for 98 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnimr_1	1.057609	.0172494	61.31	0.000	1.023374	1.091845
lnad5pc	-.0080372	.0070285	-1.14	0.256	-.0219868	.0059123
lnwt5pc	-.0032906	.003833	-0.86	0.393	-.010898	.0043168
lnal5pc	-.0016089	.0097254	-0.17	0.869	-.0209112	.0176933
lnigdp5	-.0060214	.0104097	-0.58	0.564	-.0266818	.014639
lnipop	-.0135465	.0065666	-2.06	0.042	-.0265793	-.0005137
ipolity2	-.000716	.0011229	-0.64	0.525	-.0029447	.0015127
t5	.0081683	.003994	2.05	0.044	.0002413	.0160953
_cons	-.1006457	.2093006	-0.48	0.632	-.5160493	.314758

Model (7a): Dynamic Panel Model (Fixed Effects)

```

Fixed-effects (within) regression      Number of obs      =      405
Group variable: cc                    Number of groups    =      98

R-sq:  within = 0.9079                Obs per group: min =      1
      between = 0.5357                  avg =      4.1
      overall  = 0.5535                  max =      6

corr(u_i, Xb) = -0.4291                F(8,97)            =    189.33
                                      Prob > F              =    0.0000

```

(Std. Err. adjusted for 98 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnimr_l	.8681522	.0612441	14.18	0.000	.7465996	.9897049
lnad5pc	-.0037652	.0082664	-0.46	0.650	-.0201718	.0126413
lnwt5pc	-.0005532	.0044188	-0.13	0.901	-.0093233	.0082169
lnal5pc	-.0132617	.0127197	-1.04	0.300	-.0385069	.0119835
lnigdp5	-.0003519	.030791	-0.01	0.991	-.0614634	.0607597
lnipop	.276116	.1461072	1.89	0.062	-.0138664	.5660985
ipolity2	-.000853	.0011188	-0.76	0.448	-.0030735	.0013675
t5	-.0473363	.0219259	-2.16	0.033	-.090853	-.0038195
_cons	-3.756675	2.181577	-1.72	0.088	-8.086501	.5731518
sigma_u	.49289415					
sigma_e	.07527799					
rho	.9772063	(fraction of variance due to u_i)				

Model (7b): Dynamic Panel Model (Arellano-Bond)

```

Arellano-Bond dynamic panel-data estimation  Number of obs      =      280
Group variable: cc                          Number of groups    =      93
Time variable: t5

Obs per group:  min =      1
                  avg =    3.010753
                  max =      4

Number of instruments =      29            Wald chi2(7)        =    612.74
                                      Prob > chi2          =    0.0000

```

Two-step results

(Std. Err. adjusted for clustering on cc)

lnimr	Coef.	WC-Robust Std. Err.	z	P> z	[95% Conf. Interval]	
lnimr L1.	.7944501	.1449145	5.48	0.000	.5104228	1.078477
lnad5pc	-.0043874	.031786	-0.14	0.890	-.0666867	.0579119
lnwt5pc	.005377	.0131536	0.41	0.683	-.0204037	.0311577
lnal5pc	.0281824	.024585	1.15	0.252	-.0200034	.0763682
lnigdp5	-.24931	.203204	-1.23	0.220	-.6475826	.1489626
ipolity2	.0031774	.0047939	0.66	0.507	-.0062185	.0125733
lnipop	-.1510165	.1114697	-1.35	0.175	-.3694931	.0674601
_cons	5.018425	3.322007	1.51	0.131	-1.492588	11.52944

Instruments for differenced equation

GMM-type: L(2/3).lnimr L(2/2).lnad5pc L(2/2).lnwt5pc L(2/2).lnal5pc L(2/2).lnigdp5 L(2/2).ipolity2

Standard: D.lnipop

Instruments for level equation

Standard: _cons

Model 8: Latent Growth Model

Mixed-effects ML regression
Group variable: cc

Number of obs = 493
Number of groups = 98

Obs per group: min = 2
avg = 5.0
max = 6

Log likelihood = 262.92101

Wald chi2(7) = 258.08
Prob > chi2 = 0.0000

lnimr	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
lnad5pc	-.0064569	.0043094	-1.50	0.134	-.0149031	.0019893
lnwt5pc	.0043687	.0028208	1.55	0.121	-.00116	.0098974
lnal5pc	-.0027993	.0042138	-0.66	0.506	-.0110582	.0054595
lnigdp5	-.1872268	.0288295	-6.49	0.000	-.2437316	-.1307219
lnipop	-.0186341	.0262589	-0.71	0.478	-.0701005	.0328324
ipolity2	.0000485	.0011042	0.04	0.965	-.0021157	.0022128
t5	-.1084047	.009478	-11.44	0.000	-.1269812	-.0898282
_cons	6.322894	.5003463	12.64	0.000	5.342233	7.303555

Random-effects Parameters	Estimate	Std. Err.	[95% Conf. Interval]	
cc: Unstructured				
sd(t5)	.0811432	.0062389	.069792	.0943406
sd(_cons)	.4216198	.0329639	.3617185	.4914408
corr(t5,_cons)	-.175981	.1149535	-.3887592	.0546187
sd(Residual)	.0618935	.0026143	.0569759	.0672356

LR test vs. linear regression: chi2(3) = 1041.97 Prob > chi2 = 0.0000

Note: LR test is conservative and provided only for reference.

ALTERNATE ESTIMATES - Definition of High Mortality Country: IMR > 75 (Infant Mortality)

Model (1): Bi-variate OLS

Linear regression

Number of obs = 332
F(1, 61) = 16.39
Prob > F = 0.0001
R-squared = 0.0796
Root MSE = .3726

(Std. Err. adjusted for 62 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc	-.08455	.0208834	-4.05	0.000	-.1263089	-.0427911
_cons	4.631422	.0486874	95.13	0.000	4.534065	4.728778

Model (2): Multi-variate OLS

Linear regression

Number of obs = 317
F(7, 57) = 19.80
Prob > F = 0.0000
R-squared = 0.5327
Root MSE = .26722

(Std. Err. adjusted for 58 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc	.0071174	.0184387	0.39	0.701	-.0298054	.0440401
lnwt5pc	-.0047348	.0149216	-0.32	0.752	-.0346148	.0251453
lnal5pc	-.0420981	.0216837	-1.94	0.057	-.085519	.0013229
lnigdp5	-.2630433	.0398272	-6.60	0.000	-.3427958	-.1832907
lnipop	-.0495764	.0194558	-2.55	0.014	-.088536	-.0106168
ipolity2	-.0114863	.0042917	-2.68	0.010	-.0200804	-.0028922
t5	-.0616852	.0154165	-4.00	0.000	-.0925561	-.0308143
_cons	7.689804	.4554383	16.88	0.000	6.777804	8.601803

Model (3): First Differences (OLS)

Linear regression

Number of obs = 252
F(6, 57) = 2.44
Prob > F = 0.0359
R-squared = 0.0786
Root MSE = .10021

(Std. Err. adjusted for 58 clusters in cc)

D.lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc D1.	.0037718	.0071716	0.53	0.601	-.0105891	.0181326
lnwt5pc D1.	-.0042245	.002922	-1.45	0.154	-.0100757	.0016268
lnal5pc D1.	-.0063749	.0033095	-1.93	0.059	-.0130021	.0002522
lnigdp5 D1.	-.0545818	.0623252	-0.88	0.385	-.1793859	.0702223
lnipop D1.	.4758797	.2339688	2.03	0.047	.0073652	.9443941
ipolity2 D1.	.0004807	.0010003	0.48	0.633	-.0015225	.0024838
t5 D1.	(omitted)					
_cons	-.1589107	.0347578	-4.57	0.000	-.228512	-.0893093

Model (4): Fixed Effects

Fixed-effects (within) regression
Group variable: cc

Number of obs = 317
Number of groups = 58

R-sq: within = 0.6260
between = 0.0010
overall = 0.0014

Obs per group: min = 3
avg = 5.5
max = 6

corr(u_i, Xb) = -0.9513

F(7,57) = 17.13
Prob > F = 0.0000

(Std. Err. adjusted for 58 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc	.0136187	.0122141	1.11	0.270	-.0108396	.0380771
lnwt5pc	-.0154483	.0106388	-1.45	0.152	-.0367521	.0058556
lnal5pc	-.0149975	.01198	-1.25	0.216	-.038987	.0089921
lnigdp5	-.0338674	.0774443	-0.44	0.664	-.1889469	.1212121
lnipop	.7018306	.2959232	2.37	0.021	.1092546	1.294407
ipolity2	.0007589	.0029504	0.26	0.798	-.0051491	.006667
t5	-.1840609	.0428573	-4.29	0.000	-.2698813	-.0982406
_cons	-5.71568	4.759856	-1.20	0.235	-15.24713	3.815766
sigma_u	1.2004962					
sigma_e	.14413602					
rho	.98578956	(fraction of variance due to u_i)				

Model (5): Random Effects

Random-effects GLS regression
Group variable: cc

Number of obs = 317
Number of groups = 58

R-sq: within = 0.5796
between = 0.4265
overall = 0.4893

Obs per group: min = 3
avg = 5.5
max = 6

Random effects u_i ~ Gaussian
corr(u_i, X) = 0 (assumed)

Wald chi2(7) = 106.89
Prob > chi2 = 0.0000

(Std. Err. adjusted for 58 clusters in cc)

lnimr	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
lnad5pc	.0187796	.0132135	1.42	0.155	-.0071183	.0446775
lnwt5pc	-.0104968	.0094636	-1.11	0.267	-.0290452	.0080515
lnal5pc	-.0222655	.0108216	-2.06	0.040	-.0434754	-.0010556
lnigdp5	-.1829675	.0526676	-3.47	0.001	-.286194	-.079741
lnipop	-.0252896	.0197188	-1.28	0.200	-.0639377	.0133585
ipolity2	-.0031562	.002779	-1.14	0.256	-.0086029	.0022906
t5	-.0864908	.0134633	-6.42	0.000	-.1128784	-.0601031
_cons	6.680337	.5665507	11.79	0.000	5.569918	7.790756
sigma_u	.2341927					
sigma_e	.14413602					
rho	.72527369	(fraction of variance due to u_i)				

Model (6): OLS w/ Lagged Dependent Variable

Linear regression

Number of obs = 272
F(8, 57) = 321.11
Prob > F = 0.0000
R-squared = 0.9437
Root MSE = .09389

(Std. Err. adjusted for 58 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnimr_l	1.036548	.0320653	32.33	0.000	.9723387	1.100758
lnad5pc	-.0159075	.0117156	-1.36	0.180	-.0393677	.0075526
lnwt5pc	.0015669	.005888	0.27	0.791	-.0102237	.0133574
lnal5pc	.0107661	.0121133	0.89	0.378	-.0134903	.0350225
lnigdp5	-.0309853	.0122615	-2.53	0.014	-.0555386	-.006432
lnipop	-.0107645	.0085402	-1.26	0.213	-.0278659	.006337
ipolity2	-.0020085	.0013276	-1.51	0.136	-.004667	.0006499
t5	.00859	.0049341	1.74	0.087	-.0012904	.0184705
_cons	.0835872	.3257424	0.26	0.798	-.5687007	.7358751

Model (7a): Dynamic Panel Model (Fixed Effects)

Fixed-effects (within) regression
Group variable: cc

Number of obs = 272
Number of groups = 58

R-sq: within = 0.8878
between = 0.1177
overall = 0.1703

Obs per group: min = 1
avg = 4.7
max = 6

F(8,57) = 130.87
Prob > F = 0.0000

corr(u_i, Xb) = -0.8392

(Std. Err. adjusted for 58 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnimr_l	.8940286	.0824	10.85	0.000	.7290254	1.059032
lnad5pc	-.0090183	.0093276	-0.97	0.338	-.0276966	.0096599
lnwt5pc	-.0040498	.0056817	-0.71	0.479	-.0154272	.0073277
lnal5pc	.0083096	.0092866	0.89	0.375	-.0102864	.0269057
lnigdp5	.0311631	.0287435	1.08	0.283	-.0263949	.088721
lnipop	.395279	.2121677	1.86	0.068	-.0295796	.8201375
ipolity2	.0000705	.0011376	0.06	0.951	-.0022075	.0023485
t5	-.0617333	.0313963	-1.97	0.054	-.1246034	.0011368
_cons	-5.993319	3.081652	-1.94	0.057	-12.16422	.1775827
sigma_u	.65403508					
sigma_e	.07705423					
rho	.98630997	(fraction of variance due to u_i)				

Model (7b): Dynamic Panel Model (Arellano-Bond)

Arellano-Bond dynamic panel-data estimation
Group variable: cc
Time variable: t5

Number of obs = 191
Number of groups = 56

Obs per group: min = 1
avg = 3.410714
max = 4

Number of instruments = 29
Wald chi2(7) = 243.07
Prob > chi2 = 0.0000

Two-step results

(Std. Err. adjusted for clustering on cc)

lnimr	Coef.	WC-Robust Std. Err.	z	P> z	[95% Conf. Interval]	
lnimr L1.	.7584896	.1711857	4.43	0.000	.4229718	1.094007
lnad5pc	-.0361251	.0368803	-0.98	0.327	-.1084092	.0361591
lnwt5pc	.019305	.0212732	0.91	0.364	-.0223897	.0609996
lnal5pc	.0583933	.0307317	1.90	0.057	-.0018397	.1186263
lnigdp5	-.4478459	.2378341	-1.88	0.060	-.9139921	.0183002
ipolity2	.0028382	.0029915	0.95	0.343	-.0030251	.0087015
lnipop	-.1042062	.1559917	-0.67	0.504	-.4099443	.2015318
_cons	5.781343	3.620137	1.60	0.110	-1.313994	12.87668

Instruments for differenced equation

GMM-type: L(2/3).lnimr L(2/2).lnad5pc L(2/2).lnwt5pc L(2/2).lnal5pc L(2/2).lnigdp5 L(2/2).ipolity2

Standard: D.lnipop

Instruments for level equation

Standard: _cons

Model 8: Latent Growth Model

Mixed-effects ML regression
Group variable: cc

Number of obs = 317
Number of groups = 58

Obs per group: min = 3
avg = 5.5
max = 6

Log likelihood = 220.52305

Wald chi2(7) = 108.59
Prob > chi2 = 0.0000

lnimr	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
lnad5pc	-.0040727	.0059938	-0.68	0.497	-.0158204	.007675
lnwt5pc	.00236	.0038874	0.61	0.544	-.0052592	.0099792
lnal5pc	-.0005034	.0056699	-0.09	0.929	-.0116162	.0106095
lnigdp5	-.1535574	.030788	-4.99	0.000	-.2139007	-.0932141
lnipop	-.0186697	.0200192	-0.93	0.351	-.0579066	.0205672
ipolity2	.0006179	.0012042	0.51	0.608	-.0017423	.0029782
t5	-.0866183	.0108507	-7.98	0.000	-.1078853	-.0653514
_cons	6.262728	.4289122	14.60	0.000	5.422076	7.103381

Random-effects Parameters	Estimate	Std. Err.	[95% Conf. Interval]	
cc: Unstructured				
sd(t5)	.0753764	.0073609	.062246	.0912767
sd(_cons)	.2845863	.0281417	.2344454	.3454509
corr(t5,_cons)	-.5655677	.1028137	-.7339625	-.3316669
sd(Residual)	.0605638	.0030515	.0548689	.0668498

LR test vs. linear regression: chi2(3) = 495.86 Prob > chi2 = 0.0000

Note: LR test is conservative and provided only for reference.

ALTERNATE ESTIMATES - Definition of High Mortality Country: IMR > 100 (Infant Mortality)

Model (1): Bi-variate OLS

Linear regression

Number of obs = 220
F(1, 39) = 6.97
Prob > F = 0.0119
R-squared = 0.0594
Root MSE = .3332

(Std. Err. adjusted for 40 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc	-.0632345	.0239544	-2.64	0.012	-.1116869	-.0147821
_cons	4.732955	.051165	92.50	0.000	4.629464	4.836446

Model (2): Multi-variate OLS

Linear regression

Number of obs = 210
F(7, 37) = 7.18
Prob > F = 0.0000
R-squared = 0.4513
Root MSE = .25698

(Std. Err. adjusted for 38 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc	.0147931	.0206387	0.72	0.478	-.0270248	.0566111
lnwt5pc	-.0108296	.0192441	-0.56	0.577	-.0498218	.0281626
lnal5pc	-.0359458	.0272597	-1.32	0.195	-.0911791	.0192875
lnigdp5	-.1947923	.055531	-3.51	0.001	-.3073088	-.0822757
lnipop	-.0398366	.0227041	-1.75	0.088	-.0858394	.0061663
ipolity2	-.009567	.0062186	-1.54	0.132	-.0221672	.0030331
t5	-.0694223	.0199709	-3.48	0.001	-.1098871	-.0289574
_cons	7.106886	.5956679	11.93	0.000	5.899948	8.313823

Model (3): First Differences (OLS)

Linear regression

Number of obs = 166
F(6, 37) = 1.80
Prob > F = 0.1262
R-squared = 0.0829
Root MSE = .08617

(Std. Err. adjusted for 38 clusters in cc)

D.lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc D1.	.0104746	.0060244	1.74	0.090	-.0017319	.0226811
lnwt5pc D1.	-.0039423	.004606	-0.86	0.398	-.013275	.0053903
lnal5pc D1.	.0024249	.0066035	0.37	0.716	-.0109549	.0158048
lnigdp5 D1.	-.05904	.0672885	-0.88	0.386	-.1953795	.0772995
lnipop D1.	.3199833	.2116612	1.51	0.139	-.108883	.7488496
ipolity2 D1.	.0014778	.0010093	1.46	0.152	-.0005673	.003523
t5 D1.	(omitted)					
_cons	-.1478317	.0353312	-4.18	0.000	-.2194196	-.0762438

Model (4): Fixed Effects

Fixed-effects (within) regression
Group variable: cc

Number of obs = 210
Number of groups = 38

R-sq: within = 0.6746
between = 0.0223
overall = 0.0017

Obs per group: min = 3
avg = 5.5
max = 6

corr(u_i, Xb) = -0.9635
F(7,37) = 13.49
Prob > F = 0.0000

(Std. Err. adjusted for 38 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc	.0225619	.0137389	1.64	0.109	-.0052757	.0503995
lnwt5pc	-.0268053	.0130992	-2.05	0.048	-.0533468	-.0002638
lnal5pc	.0153211	.0253221	0.61	0.549	-.0359862	.0666285
lnigdp5	-.0209392	.0877674	-0.24	0.813	-.1987728	.1568944
lnipop	.6813467	.3237449	2.10	0.042	.0253772	1.337316
ipolity2	.0046142	.0029323	1.57	0.124	-.0013272	.0105557
t5	-.2011518	.051057	-3.94	0.000	-.3046032	-.0977004
_cons	-5.51759	5.181839	-1.06	0.294	-16.01699	4.981814
sigma_u	1.2282299					
sigma_e	.13315347					
rho	.98838361	(fraction of variance due to u_i)				

Model (5): Random Effects

Random-effects GLS regression
Group variable: cc

Number of obs = 210
Number of groups = 38

R-sq: within = 0.6344
between = 0.1682
overall = 0.3693

Obs per group: min = 3
avg = 5.5
max = 6

Random effects u_i ~ Gaussian
corr(u_i, X) = 0 (assumed)

Wald chi2(7) = 70.54
Prob > chi2 = 0.0000

(Std. Err. adjusted for 38 clusters in cc)

lnimr	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
lnad5pc	.0244009	.0141971	1.72	0.086	-.003425	.0522267
lnwt5pc	-.0183601	.0115113	-1.59	0.111	-.0409219	.0042017
lnal5pc	.0077818	.0230417	0.34	0.736	-.0373791	.0529426
lnigdp5	-.1226684	.0596435	-2.06	0.040	-.2395676	-.0057693
lnipop	-.0272213	.0226104	-1.20	0.229	-.071537	.0170943
ipolity2	.0020059	.0030106	0.67	0.505	-.0038948	.0079066
t5	-.1064201	.0157499	-6.76	0.000	-.1372893	-.075551
_cons	6.306065	.6103984	10.33	0.000	5.109706	7.502424
sigma_u	.21445518					
sigma_e	.13315347					
rho	.7217576	(fraction of variance due to u_i)				

Model (6): OLS w/ Lagged Dependent Variable

Linear regression

Number of obs = 180
F(8, 37) = 360.03
Prob > F = 0.0000
R-squared = 0.9601
Root MSE = .07079

(Std. Err. adjusted for 38 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnimr_l	1.138957	.0322091	35.36	0.000	1.073695	1.204219
lnad5pc	-.0164429	.0099213	-1.66	0.106	-.0365455	.0036596
lnwt5pc	.0018628	.0053116	0.35	0.728	-.0088995	.0126251
lnal5pc	.0184546	.0123455	1.49	0.143	-.0065597	.0434689
lnigdp5	-.0241926	.0127421	-1.90	0.065	-.0500104	.0016253
lnipop	-.0027577	.007535	-0.37	0.716	-.018025	.0125097
ipolity2	-.0015909	.0011981	-1.33	0.192	-.0040184	.0008367
t5	.0123887	.0051136	2.42	0.020	.0020275	.0227499
_cons	-.6384491	.2996551	-2.13	0.040	-1.245608	-.0312902

Model (7a): Dynamic Panel Model (Fixed Effects)

Fixed-effects (within) regression
Group variable: cc
R-sq: within = 0.9452
between = 0.9571
overall = 0.9463
Number of obs = 180
Number of groups = 38
Obs per group: min = 1
avg = 4.7
max = 6
F(8,37) = 115.83
Prob > F = 0.0000
corr(u_i, Xb) = 0.4955

(Std. Err. adjusted for 38 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnimr_l	1.028347	.0679446	15.14	0.000	.8906784	1.166016
lnad5pc	-.006367	.0077807	-0.82	0.418	-.0221321	.0093982
lnwt5pc	-.0059204	.0065627	-0.90	0.373	-.0192176	.0073769
lnal5pc	.0194281	.010219	1.90	0.065	-.0012777	.0401338
lnigdp5	.0157394	.0273666	0.58	0.569	-.0397106	.0711894
lnipop	-.0037429	.100358	-0.04	0.970	-.2070875	.1996018
ipolity2	.0002272	.0010168	0.22	0.824	-.001833	.0022874
t5	-.0050407	.0132128	-0.38	0.705	-.0318123	.021731
_cons	-.3446668	1.718354	-0.20	0.842	-3.826383	3.13705
sigma_u	.07527517					
sigma_e	.05406446					
rho	.65969753	(fraction of variance due to u_i)				

Model (7b): Dynamic Panel Model (Arellano-Bond)

Arellano-Bond dynamic panel-data estimation
Group variable: cc
Time variable: t5
Number of obs = 125
Number of groups = 37
Obs per group: min = 1
avg = 3.378378
max = 4
Number of instruments = 29
Wald chi2(7) = 965.50
Prob > chi2 = 0.0000

Two-step results

(Std. Err. adjusted for clustering on cc)

lnimr	Coef.	WC-Robust Std. Err.	z	P> z	[95% Conf. Interval]	
lnimr L1.	.951007	.1095429	8.68	0.000	.7363069	1.165707
lnad5pc	-.0024963	.014135	-0.18	0.860	-.0302003	.0252077
lnwt5pc	.0125741	.0077729	1.62	0.106	-.0026605	.0278087
lnal5pc	.0260929	.0135579	1.92	0.054	-.0004802	.052666
lnigdp5	-.049886	.0576015	-0.87	0.386	-.1627829	.0630109
ipolity2	.0029386	.0022688	1.30	0.195	-.0015081	.0073853
lnipop	-.1439463	.0967124	-1.49	0.137	-.3334992	.0456065
_cons	2.693553	2.127691	1.27	0.206	-1.476645	6.863751

Instruments for differenced equation

GMM-type: L(2/3).lnimr L(2/2).lnad5pc L(2/2).lnwt5pc L(2/2).lnal5pc L(2/2).lnigdp5 L(2/2).ipolity2

Standard: D.lnipop

Instruments for level equation

Standard: _cons

Model 8: Latent Growth Model

Mixed-effects ML regression
Group variable: cc

Number of obs = 210
Number of groups = 38

Obs per group: min = 3
avg = 5.5
max = 6

Log likelihood = 192.62901

Wald chi2(7) = 73.84
Prob > chi2 = 0.0000

lnimr	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
lnad5pc	.0061624	.0055909	1.10	0.270	-.0047955	.0171203
lnwt5pc	.0022635	.0042492	0.53	0.594	-.0060649	.0105918
lnal5pc	.0048598	.0068702	0.71	0.479	-.0086056	.0183253
lnigdp5	-.0923469	.0290007	-3.18	0.001	-.1491873	-.0355065
lnipop	-.0135667	.0187734	-0.72	0.470	-.0503619	.0232284
ipolity2	.0017303	.0010937	1.58	0.114	-.0004132	.0038738
t5	-.0959592	.0124458	-7.71	0.000	-.1203525	-.071566
_cons	5.829538	.3968369	14.69	0.000	5.051752	6.607324

Random-effects Parameters	Estimate	Std. Err.	[95% Conf. Interval]	
cc: Unstructured				
sd(t5)	.0720618	.0085344	.0571342	.0908895
sd(_cons)	.209791	.0259163	.1646775	.2672632
corr(t5,_cons)	-.4721767	.1405669	-.7000621	-.1570041
sd(Residual)	.0465508	.0028493	.0412882	.0524842

LR test vs. linear regression: chi2(3) = 402.37 Prob > chi2 = 0.0000

Note: LR test is conservative and provided only for reference.

ALTERNATE ESTIMATES - 2-year Time Delay

Model (1): Bi-variate OLS

Linear regression

Number of obs = 547
 F(1, 95) = 0.22
 Prob > F = 0.6408
 R-squared = 0.0009
 Root MSE = .5767

(Std. Err. adjusted for 96 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc	-.0097422	.0208153	-0.47	0.641	-.0510659	.0315814
_cons	4.224975	.0642305	65.78	0.000	4.097461	4.352489

Model (2): Multi-variate OLS

Linear regression

Number of obs = 476
 F(7, 83) = 47.83
 Prob > F = 0.0000
 R-squared = 0.6557
 Root MSE = .3397

(Std. Err. adjusted for 84 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc	.0414915	.0157384	2.64	0.010	.0101884	.0727946
lnwt5pc	-.0245452	.0184448	-1.33	0.187	-.0612312	.0121408
lnal5pc	-.0023741	.0173643	-0.14	0.892	-.036911	.0321627
lnigdp5	-.3680169	.0338501	-10.87	0.000	-.4353435	-.3006904
lnipop	-.0484966	.0227543	-2.13	0.036	-.093754	-.0032393
ipolity2	-.0086419	.0048356	-1.79	0.078	-.0182597	.000976
t5	-.1008092	.0132881	-7.59	0.000	-.1272386	-.0743798
_cons	8.298359	.4207241	19.72	0.000	7.461555	9.135162

Model (3): First Differences (OLS)

Linear regression

Number of obs = 392
F(6, 83) = 2.28
Prob > F = 0.0439
R-squared = 0.0386
Root MSE = .1125

(Std. Err. adjusted for 84 clusters in cc)

D.lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc D1.	.0017215	.0018706	0.92	0.360	-.001999	.005442
lnwt5pc D1.	-.0002219	.0030066	-0.07	0.941	-.0062018	.005758
lnal5pc D1.	-.0058599	.0041281	-1.42	0.159	-.0140706	.0023507
lnigdp5 D1.	-.0934526	.0370569	-2.52	0.014	-.1671572	-.019748
lnipop D1.	.1819694	.214423	0.85	0.399	-.2445093	.6084482
ipolity2 D1.	.0013457	.0009196	1.46	0.147	-.0004834	.0031748
t5 D1.	(omitted)					
_cons	-.1432476	.0270023	-5.31	0.000	-.1969541	-.0895411

Model (4): Fixed Effects

Fixed-effects (within) regression
Group variable: cc

Number of obs = 476
Number of groups = 84

R-sq: within = 0.6698
between = 0.0032
overall = 0.0037

Obs per group: min = 2
avg = 5.7
max = 6

corr(u_i, Xb) = -0.8214

F(7,83) = 31.16
Prob > F = 0.0000

(Std. Err. adjusted for 84 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc	.0141428	.0077511	1.82	0.072	-.0012738	.0295595
lnwt5pc	-.0148099	.0080867	-1.83	0.071	-.030894	.0012742
lnal5pc	-.0109665	.0086564	-1.27	0.209	-.0281837	.0062506
lnigdp5	-.1168074	.0587617	-1.99	0.050	-.2336821	.0000673
lnipop	.4913577	.2695605	1.82	0.072	-.0447873	1.027503
ipolity2	.0023986	.0030287	0.79	0.431	-.0036254	.0084226
t5	-.1777569	.0336432	-5.28	0.000	-.2446718	-.110842
_cons	-2.038776	4.335656	-0.47	0.639	-10.66222	6.584668
sigma_u	.98054568					
sigma_e	.16361532					
rho	.97291146	(fraction of variance due to u_i)				

Model (5): Random Effects

Random-effects GLS regression
Group variable: cc

Number of obs = 476
Number of groups = 84

R-sq: within = 0.6402
between = 0.6524
overall = 0.6369

Obs per group: min = 2
avg = 5.7
max = 6

Random effects u_i ~ Gaussian
corr(u_i, X) = 0 (assumed)

Wald chi2(7) = 244.95
Prob > chi2 = 0.0000

(Std. Err. adjusted for 84 clusters in cc)

lnimr	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
lnad5pc	.0199729	.0077595	2.57	0.010	.0047647	.0351812
lnwt5pc	-.0104718	.0083359	-1.26	0.209	-.0268099	.0058664
lnal5pc	-.0161308	.0095315	-1.69	0.091	-.0348122	.0025505
lnigdp5	-.2758406	.0457758	-6.03	0.000	-.3655596	-.1861216
lnipop	-.0479375	.0237063	-2.02	0.043	-.094401	-.001474
ipolity2	-.0016728	.0030208	-0.55	0.580	-.0075934	.0042478
t5	-.1033987	.0131255	-7.88	0.000	-.1291243	-.0776731
_cons	7.633847	.4550664	16.78	0.000	6.741934	8.525761
sigma_u	.29439006					
sigma_e	.16361532					
rho	.76400707	(fraction of variance due to u_i)				

Model (6): OLS w/ Lagged Dependent Variable

Linear regression

Number of obs = 470
F(8, 83) = 196.63
Prob > F = 0.0000
R-squared = 0.8640
Root MSE = .21399

(Std. Err. adjusted for 84 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnimr_l	.6992914	.1084664	6.45	0.000	.4835561	.9150266
lnad5pc	.0057934	.0089567	0.65	0.520	-.0120212	.0236079
lnwt5pc	-.0004382	.0087098	-0.05	0.960	-.0177617	.0168853
lnal5pc	-.0275347	.0144787	-1.90	0.061	-.0563323	.0012628
lnigdp5	-.1549755	.038218	-4.06	0.000	-.2309897	-.0789614
lnipop	-.0320738	.0116261	-2.76	0.007	-.0551976	-.0089499
ipolity2	-.0041857	.0023133	-1.81	0.074	-.0087867	.0004153
t5	-.0183298	.0135725	-1.35	0.181	-.0453248	.0086653
_cons	3.138699	.918113	3.42	0.001	1.312609	4.964789

Model (7a): Dynamic Panel Model (Fixed Effects)

```

Fixed-effects (within) regression      Number of obs      =      470
Group variable: cc                    Number of groups    =      84

R-sq:  within = 0.7655                Obs per group: min =      2
      between = 0.0081                avg =      5.6
      overall  = 0.0504                max =      6

corr(u_i, Xb) = -0.7213                F(8,83)            =      56.71
                                      Prob > F              =      0.0000

```

(Std. Err. adjusted for 84 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnimr_l	.3336491	.0975102	3.42	0.001	.1397053	.527593
lnad5pc	.0055309	.0060398	0.92	0.362	-.0064821	.0175438
lnwt5pc	-.0075542	.0072395	-1.04	0.300	-.0219532	.0068449
lnal5pc	-.0283952	.0097192	-2.92	0.004	-.0477263	-.0090641
lnigdp5	-.0364545	.0420573	-0.87	0.389	-.1201047	.0471957
lnipop	.3989947	.2120068	1.88	0.063	-.0226783	.8206676
ipolity2	.0011215	.0023411	0.48	0.633	-.0035349	.005778
t5	-.1257314	.033662	-3.74	0.000	-.1926838	-.058779
_cons	-2.760775	3.190159	-0.87	0.389	-9.105872	3.584322
sigma_u	.8017962					
sigma_e	.1384531					
rho	.97104544	(fraction of variance due to u_i)				

Model (7b): Dynamic Panel Model (Arellano-Bond)

```

Arellano-Bond dynamic panel-data estimation  Number of obs      =      309
Group variable: cc                          Number of groups    =      83
Time variable: t5

Obs per group:  min =      1
                  avg =  3.722892
                  max =      4

Number of instruments =      29            Wald chi2(7)        =      743.98
                                      Prob > chi2          =      0.0000

```

Two-step results

(Std. Err. adjusted for clustering on cc)

lnimr	Coef.	WC-Robust Std. Err.	z	P> z	[95% Conf. Interval]	
lnimr L1.	.8062294	.0926774	8.70	0.000	.624585	.9878737
lnad5pc	.0121985	.0196112	0.62	0.534	-.0262387	.0506358
lnwt5pc	.0217047	.014221	1.53	0.127	-.006168	.0495774
lnal5pc	.0032401	.0222841	0.15	0.884	-.040436	.0469163
lnigdp5	-.2624385	.134222	-1.96	0.051	-.5255087	.0006318
ipolity2	-.0035945	.0048293	-0.74	0.457	-.0130598	.0058708
lnipop	-.0882325	.1285992	-0.69	0.493	-.3402824	.1638174
_cons	4.19032	2.523581	1.66	0.097	-.7558069	9.136447

Instruments for differenced equation

GMM-type: L(2/3).lnimr L(2/2).lnad5pc L(2/2).lnwt5pc L(2/2).lnal5pc L(2/2).lnigdp5 L(2/2).ipolity2

Standard: D.lnipop

Instruments for level equation

Standard: _cons

Model 8: Latent Growth Model

Mixed-effects ML regression
Group variable: cc

Number of obs = 476
Number of groups = 84

Obs per group: min = 2
avg = 5.7
max = 6

Log likelihood = 269.11827

Wald chi2(7) = 205.65
Prob > chi2 = 0.0000

lnimr	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
lnad5pc	-.0003969	.0034593	-0.11	0.909	-.007177	.0063832
lnwt5pc	.0020753	.0033742	0.62	0.539	-.004538	.0086886
lnal5pc	-.00031	.0039399	-0.08	0.937	-.0080321	.0074122
lnigdp5	-.1422528	.0232082	-6.13	0.000	-.18774	-.0967657
lnipop	-.0499871	.0221269	-2.26	0.024	-.093355	-.0066191
ipolity2	.0007722	.0012478	0.62	0.536	-.0016736	.0032179
t5	-.112163	.010185	-11.01	0.000	-.1321253	-.0922008
_cons	6.566099	.3961151	16.58	0.000	5.789727	7.34247

Random-effects Parameters	Estimate	Std. Err.	[95% Conf. Interval]	
cc: Unstructured				
sd(t5)	.0850678	.0069634	.0724583	.0998716
sd(_cons)	.3380798	.0287472	.2861811	.3993903
corr(t5,_cons)	-.2441543	.1282128	-.4749237	.0180329
sd(Residual)	.0674119	.0027936	.0621529	.0731158

LR test vs. linear regression: chi2(3) = 853.12 Prob > chi2 = 0.0000

Note: LR test is conservative and provided only for reference.

ALTERNATE ESTIMATES – DAH by Donor Type (Infant Mortality)

Model (1): Bi-variate OLS

Linear regression

Number of obs = 526
 F(2, 113) = 0.51
 Prob > F = 0.6006
 R-squared = 0.0052
 Root MSE = .66843

(Std. Err. adjusted for 114 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad15pc	.030269	.0299216	1.01	0.314	-.029011	.089549
lnad25pc	-.0084345	.0271883	-0.31	0.757	-.0622993	.0454304
_cons	4.042145	.0744951	54.26	0.000	3.894556	4.189733

Model (2): Multi-variate OLS

Linear regression

Number of obs = 452
 F(8, 96) = 38.98
 Prob > F = 0.0000
 R-squared = 0.5776
 Root MSE = .42887

(Std. Err. adjusted for 97 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad15pc	.0819993	.0244291	3.36	0.001	.0335078	.1304907
lnad25pc	.0163544	.0173286	0.94	0.348	-.0180426	.0507514
lnwt5pc	-.0173699	.0201471	-0.86	0.391	-.0573615	.0226218
lnal5pc	-.0082648	.0230778	-0.36	0.721	-.0540738	.0375443
lnigdp5	-.3695436	.0453249	-8.15	0.000	-.4595129	-.2795743
lnipop	-.0258118	.0286713	-0.90	0.370	-.0827239	.0311002
polity2	-.0212196	.0061546	-3.45	0.001	-.0334364	-.0090028
t5	-.1202592	.0170367	-7.06	0.000	-.1540768	-.0864416
_cons	7.917367	.5578118	14.19	0.000	6.810119	9.024614

Model (3): First Differences (OLS)

Linear regression

Number of obs = 346
F(7, 84) = 4.22
Prob > F = 0.0005
R-squared = 0.1136
Root MSE = .10771

(Std. Err. adjusted for 85 clusters in cc)

D.lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad15pc D1.	-.0009694	.005036	-0.19	0.848	-.010984	.0090451
lnad25pc D1.	-.0020315	.0020857	-0.97	0.333	-.0061791	.0021161
lnwt5pc D1.	-.0018603	.0024998	-0.74	0.459	-.0068314	.0031108
lnal5pc D1.	-.0015509	.0054667	-0.28	0.777	-.012422	.0093202
lnigdp5 D1.	-.1019047	.0407081	-2.50	0.014	-.1828572	-.0209522
lnipop D1.	.4771264	.1645599	2.90	0.005	.149881	.8043719
polity2 D1.	.0000296	.001059	0.03	0.978	-.0020764	.0021356
t5 D1.	(omitted)					
_cons	-.1657942	.0231982	-7.15	0.000	-.2119264	-.119662

Model (4): Fixed Effects

Fixed-effects (within) regression
Group variable: cc

Number of obs = 452
Number of groups = 97

R-sq: within = 0.6894
between = 0.0002
overall = 0.0038

Obs per group: min = 1
avg = 4.7
max = 6

corr(u_i, Xb) = -0.8837

F(8,96) = 29.30
Prob > F = 0.0000

(Std. Err. adjusted for 97 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad15pc	.015181	.0099052	1.53	0.129	-.0044806	.0348426
lnad25pc	.001551	.0060991	0.25	0.800	-.0105557	.0136577
lnwt5pc	-.0170288	.0071683	-2.38	0.020	-.0312577	-.0028
lnal5pc	-.0054672	.008042	-0.68	0.498	-.0214304	.0104961
lnigdp5	-.0870814	.0601934	-1.45	0.151	-.2065644	.0324016
lnipop	.7657126	.23337	3.28	0.001	.3024768	1.228948
polity2	-.0026814	.0026796	-1.00	0.319	-.0080002	.0026375
t5	-.1996241	.032053	-6.23	0.000	-.2632487	-.1359995
_cons	-6.706834	3.810154	-1.76	0.082	-14.26993	.8562623
sigma_u	1.4070042					
sigma_e	.1484576					
rho	.98898953	(fraction of variance due to u_i)				

Model (5): Random Effects

Random-effects GLS regression	Number of obs	=	452
Group variable: cc	Number of groups	=	97
R-sq: within = 0.6491	Obs per group: min	=	1
between = 0.5212	avg	=	4.7
overall = 0.5438	max	=	6
Random effects u_i ~ Gaussian	Wald chi2(8)	=	227.84
corr(u_i, X) = 0 (assumed)	Prob > chi2	=	0.0000

(Std. Err. adjusted for 97 clusters in cc)

lnimr	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
lnad15pc	.0271465	.0104738	2.59	0.010	.0066182	.0476748
lnad25pc	.0022813	.007227	0.32	0.752	-.0118834	.0164461
lnwt5pc	-.0113066	.0075767	-1.49	0.136	-.0261567	.0035435
lnal5pc	-.0132636	.0088274	-1.50	0.133	-.0305649	.0040378
lnigdp5	-.2452486	.0571758	-4.29	0.000	-.3573112	-.133186
lnipop	-.0149817	.0332474	-0.45	0.652	-.0801454	.050182
polity2	-.0051678	.0026223	-1.97	0.049	-.0103075	-.0000282
t5	-.1040538	.0126092	-8.25	0.000	-.1287674	-.0793403
_cons	6.712085	.7035703	9.54	0.000	5.333112	8.091057
sigma_u	.43219998					
sigma_e	.14845982					
rho	.89446169	(fraction of variance due to u_i)				

Model (7a): Dynamic Panel Model (Fixed Effects)

Linear regression	Number of obs	=	382
	F(9, 96)	=	1171.87
	Prob > F	=	0.0000
	R-squared	=	0.9769
	Root MSE	=	.10153

(Std. Err. adjusted for 97 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnimr_1	1.056048	.0166886	63.28	0.000	1.022922	1.089175
lnad15pc	-.0076017	.0062441	-1.22	0.226	-.0199962	.0047928
lnad25pc	-.0061212	.0041629	-1.47	0.145	-.0143844	.002142
lnwt5pc	-.0017081	.0048094	-0.36	0.723	-.0112546	.0078384
lnal5pc	-.0038648	.0109461	-0.35	0.725	-.0255926	.017863
lnigdp5	-.0147066	.0109485	-1.34	0.182	-.0364392	.0070259
lnipop	-.0159989	.0068006	-2.35	0.021	-.029498	-.0024997
polity2	-.0007733	.0011759	-0.66	0.512	-.0031075	.0015609
t5	.0082154	.0036199	2.27	0.025	.0010299	.0154009
_cons	.0216857	.218684	0.10	0.921	-.4123987	.4557701

Model (7b): Dynamic Panel Model (Fixed Effects)

Arellano-Bond dynamic panel-data estimation Number of obs = 260
 Group variable: cc Number of groups = 84
 Time variable: t5

Obs per group: min = 1
 avg = 3.095238
 max = 4

Number of instruments = 33 Wald chi2(8) = 858.49
 Prob > chi2 = 0.0000

Two-step results

(Std. Err. adjusted for clustering on cc)

lnimr	Coef.	WC-Robust Std. Err.	z	P> z	[95% Conf. Interval]	
lnimr						
L1.	.8131413	.1137732	7.15	0.000	.5901499	1.036133
lnad15pc	-.0329594	.0233166	-1.41	0.157	-.0786591	.0127404
lnad25pc	-.0053448	.0088209	-0.61	0.545	-.0226334	.0119439
lnwt5pc	.0161764	.0095212	1.70	0.089	-.0024849	.0348377
lnal5pc	.0263395	.0217698	1.21	0.226	-.0163284	.0690075
lnigdp5	-.1183867	.1339673	-0.88	0.377	-.3809577	.1441842
polity2	.0037768	.0046827	0.81	0.420	-.005401	.0129547
lnipop	-.1080378	.1002751	-1.08	0.281	-.3045734	.0884979
_cons	3.227689	2.669584	1.21	0.227	-2.004599	8.459977

Instruments for differenced equation

GMM-type: L(2/3).lnimr L(2/2).lnad15pc L(2/2).lnad25pc L(2/2).lnwt5pc
 L(2/2).lnal5pc L(2/2).lnigdp5 L(2/2).polity2

Standard: D.lnipop

Instruments for level equation

Standard: _cons

Model 8: Latent Growth Model

Mixed-effects ML regression
Group variable: cc

Number of obs = 452
Number of groups = 97

Obs per group: min = 1
avg = 4.7
max = 6

Log likelihood = 210.11981

Wald chi2(8) = 210.50
Prob > chi2 = 0.0000

lnimr	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
lnad15pc	-.0085316	.0048487	-1.76	0.078	-.0180349	.0009716
lnad25pc	-.0046395	.0026589	-1.74	0.081	-.009851	.0005719
lnwt5pc	.0033887	.0030845	1.10	0.272	-.0026569	.0094343
lnal5pc	-.0005071	.0045289	-0.11	0.911	-.0093835	.0083693
lnigdp5	-.0838846	.0238977	-3.51	0.000	-.1307233	-.037046
lnipop	-.008126	.0299868	-0.27	0.786	-.0668991	.050647
polity2	.0006384	.0011769	0.54	0.588	-.0016683	.0029451
t5	-.1167791	.0101142	-11.55	0.000	-.1366024	-.0969557
_cons	5.318769	.5175272	10.28	0.000	4.304434	6.333104

Random-effects Parameters	Estimate	Std. Err.	[95% Conf. Interval]	
cc: Unstructured				
sd(t5)	.0851705	.0070175	.0724696	.1000974
sd(_cons)	.463838	.0389858	.3933892	.5469027
corr(t5,_cons)	.010829	.1163582	-.2139004	.2344698
sd(Residual)	.062768	.0027737	.0575604	.0684467

LR test vs. linear regression: chi2(3) = 928.54 Prob > chi2 = 0.0000

Note: LR test is conservative and provided only for reference.

ALTERNATE ESTIMATES – Lagged Effectiveness (Infant Mortality)

Model (1): Bi-variate OLS

Linear regression

Number of obs = 375
F(2, 83) = 2.14
Prob > F = 0.1241
R-squared = 0.0160
Root MSE = .51733

(Std. Err. adjusted for 84 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc	-.023208	.0270536	-0.86	0.393	-.0770165	.0306005
lnad5pc_l	-.0291167	.0175148	-1.66	0.100	-.063953	.0057196
_cons	4.352054	.0846731	51.40	0.000	4.183643	4.520465

Model (2): Multi-variate OLS

Linear regression

Number of obs = 344
F(10, 74) = 21.92
Prob > F = 0.0000
R-squared = 0.5368
Root MSE = .35617

(Std. Err. adjusted for 75 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc	.0413443	.028442	1.45	0.150	-.0153276	.0980162
lnad5pc_l	.0115463	.026674	0.43	0.666	-.0416028	.0646953
lnwt5pc	-.024651	.0170392	-1.45	0.152	-.0586024	.0093003
lnwt5pc_l	.0065997	.0171524	0.38	0.702	-.0275772	.0407767
lnal5pc	-.0430741	.030144	-1.43	0.157	-.1031373	.0169891
lnal5pc_l	.018137	.0172461	1.05	0.296	-.0162266	.0525007
lnigdp5	-.3403498	.0511034	-6.66	0.000	-.4421755	-.238524
lnipop	-.0627695	.0235458	-2.67	0.009	-.1096855	-.0158534
ipolity2	-.0071793	.0059078	-1.22	0.228	-.0189509	.0045923
t5	-.1087464	.0185509	-5.86	0.000	-.1457098	-.071783
_cons	8.467337	.5111255	16.57	0.000	7.448898	9.485777

Model (3): First Differences (OLS)

Linear regression

Number of obs = 263
F(9, 74) = 1.84
Prob > F = 0.0758
R-squared = 0.1260
Root MSE = .10882

(Std. Err. adjusted for 75 clusters in cc)

D.lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc D1.	.0054978	.008074	0.68	0.498	-.0105899	.0215856
lnad5pc_l D1.	.0064109	.0060985	1.05	0.297	-.0057407	.0185625
lnwt5pc D1.	-.0050155	.0047847	-1.05	0.298	-.0145492	.0045182
lnwt5pc_l D1.	-.0053247	.0045384	-1.17	0.244	-.0143676	.0037182
lnal5pc D1.	-.0039029	.0060513	-0.64	0.521	-.0159604	.0081545
lnal5pc_l D1.	-.0041953	.0054285	-0.77	0.442	-.0150118	.0066213
lnigdp5 D1.	-.0797795	.0755528	-1.06	0.294	-.2303217	.0707626
lnipop D1.	.5934799	.2550717	2.33	0.023	.0852384	1.101721
ipolity2 D1.	.000572	.0011355	0.50	0.616	-.0016906	.0028346
t5 D1.	(omitted)					
_cons	-.1839302	.0347957	-5.29	0.000	-.2532621	-.1145982

Model (4): Fixed Effects

Fixed-effects (within) regression
Group variable: cc

Number of obs = 344
Number of groups = 75

R-sq: within = 0.6378
between = 0.0088
overall = 0.0029

Obs per group: min = 2
avg = 4.6
max = 5

F(10,74) = 16.89
Prob > F = 0.0000

corr(u_i, Xb) = -0.9517

(Std. Err. adjusted for 75 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc	.01073	.0102245	1.05	0.297	-.0096427	.0311027
lnad5pc_l	.007788	.0104009	0.75	0.456	-.0129362	.0285122
lnwt5pc	-.0198973	.0083746	-2.38	0.020	-.0365842	-.0032105
lnwt5pc_l	-.0120775	.006939	-1.74	0.086	-.0259038	.0017488
lnal5pc	-.0039178	.0140968	-0.28	0.782	-.0320064	.0241707
lnal5pc_l	.0073917	.0094783	0.78	0.438	-.0114943	.0262776
lnigdp5	-.0787217	.0878282	-0.90	0.373	-.2537232	.0962799
lnipop	.9643513	.3094158	3.12	0.003	.347827	1.580876
ipolity2	.0013965	.0028714	0.49	0.628	-.004325	.0071179
t5	-.228237	.0410123	-5.57	0.000	-.3099557	-.1465183
_cons	-9.618018	5.014578	-1.92	0.059	-19.60978	.3737475
sigma_u	1.6398821					
sigma_e	.13998544					
rho	.99276585	(fraction of variance due to u_i)				

Model (5): Random Effects

Random-effects GLS regression
Group variable: cc

Number of obs = 344
Number of groups = 75

R-sq: within = 0.5823
between = 0.4828
overall = 0.5187

Obs per group: min = 2
avg = 4.6
max = 5

Random effects u_i ~ Gaussian
corr(u_i, X) = 0 (assumed)

Wald chi2(10) = 141.96
Prob > chi2 = 0.0000

(Std. Err. adjusted for 75 clusters in cc)

lnimr	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
lnad5pc	.0136427	.0105018	1.30	0.194	-.0069404	.0342258
lnad5pc_l	.0198781	.0097714	2.03	0.042	.0007266	.0390297
lnwt5pc	-.0142755	.0094101	-1.52	0.129	-.0327189	.0041679
lnwt5pc_l	-.0071302	.0082228	-0.87	0.386	-.0232465	.0089861
lnal5pc	-.0097279	.0126224	-0.77	0.441	-.0344675	.0150116
lnal5pc_l	-.0014603	.0092534	-0.16	0.875	-.0195966	.016676
lnigdp5	-.2677565	.0605101	-4.42	0.000	-.386354	-.149159
lnipop	-.0449481	.0243583	-1.85	0.065	-.0926895	.0027934
ipolity2	.0000216	.0027971	0.01	0.994	-.0054606	.0055039
t5	-.106346	.0149086	-7.13	0.000	-.1355663	-.0771256
_cons	7.567886	.6180854	12.24	0.000	6.356461	8.779312
sigma_u	.32064359					
sigma_e	.13998544					
rho	.83991335	(fraction of variance due to u_i)				

Model (6): OLS w/ Lagged Dependent Variable

Linear regression

Number of obs = 310
F(11, 74) = 960.01
Prob > F = 0.0000
R-squared = 0.9652
Root MSE = .09924

(Std. Err. adjusted for 75 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnimr_1	1.072144	.0205721	52.12	0.000	1.031153	1.113135
lnad5pc	-.0149549	.0113942	-1.31	0.193	-.0376583	.0077485
lnad5pc_1	.0018654	.0071793	0.26	0.796	-.0124396	.0161705
lnwt5pc	-.0053619	.0040974	-1.31	0.195	-.013526	.0028023
lnwt5pc_1	.000234	.0037804	0.06	0.951	-.0072986	.0077665
lnal5pc	-.0048682	.0109662	-0.44	0.658	-.0267187	.0169824
lnal5pc_1	.0093035	.0053121	1.75	0.084	-.0012811	.0198881
lnigdp5	-.0122419	.01252	-0.98	0.331	-.0371886	.0127047
lnipop	-.0144607	.0079192	-1.83	0.072	-.0302401	.0013187
ipolity2	-.0007693	.0013049	-0.59	0.557	-.0033693	.0018307
t5	.003008	.0065029	0.46	0.645	-.0099493	.0159652
_cons	-.0956412	.252532	-0.38	0.706	-.5988223	.4075399

Model (7a): Dynamic Panel Model (Fixed Effects)

Fixed-effects (within) regression
Group variable: cc

Number of obs = 310
Number of groups = 75

R-sq: within = 0.8919
between = 0.1959
overall = 0.2513

Obs per group: min = 1
avg = 4.1
max = 5

corr(u_i, Xb) = -0.6984

F(11,74) = 158.63
Prob > F = 0.0000

(Std. Err. adjusted for 75 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnimr_1	.8493261	.0626247	13.56	0.000	.7245437	.9741085
lnad5pc	-.0062794	.009431	-0.67	0.508	-.025071	.0125121
lnad5pc_1	.0012623	.0045337	0.28	0.781	-.0077714	.0102959
lnwt5pc	-.0008636	.0052816	-0.16	0.871	-.0113875	.0096604
lnwt5pc_1	-.0013142	.0040874	-0.32	0.749	-.0094584	.0068301
lnal5pc	-.0144003	.0160311	-0.90	0.372	-.046343	.0175423
lnal5pc_1	-.0016262	.0042267	-0.38	0.702	-.0100481	.0067957
lnigdp5	-.0046029	.0356531	-0.13	0.898	-.0756432	.0664374
lnipop	.3737797	.1749467	2.14	0.036	.0251908	.7223686
ipolity2	.0003913	.0013129	0.30	0.766	-.0022246	.0030072
t5	-.067358	.0261226	-2.58	0.012	-.1194085	-.0153076
_cons	-5.061153	2.550866	-1.98	0.051	-10.14386	.0215582
sigma_u	.63508422					
sigma_e	.07555441					
rho	.98604424	(fraction of variance due to u_i)				

Model (7b): Dynamic Panel Model (Arellano-Bond)

Arellano-Bond dynamic panel-data estimation Number of obs = 232
 Group variable: cc Number of groups = 73
 Time variable: t5

Obs per group: min = 1
 avg = 3.178082
 max = 4

Number of instruments = 38 Wald chi2(10) = 673.61
 Prob > chi2 = 0.0000

Two-step results

(Std. Err. adjusted for clustering on cc)

lnimr	Coef.	WC-Robust Std. Err.	z	P> z	[95% Conf. Interval]	
lnimr						
L1.	.9102398	.0847726	10.74	0.000	.7440886	1.076391
lnad5pc	-.0537801	.0229723	-2.34	0.019	-.098805	-.0087552
lnad5pc_l	.0107907	.0063341	1.70	0.088	-.0016239	.0232053
lnwt5pc	.0082698	.009316	0.89	0.375	-.0099892	.0265289
lnwt5pc_l	.0062903	.0062494	1.01	0.314	-.0059583	.0185389
lnal5pc	.0587367	.0282076	2.08	0.037	.0034509	.1140225
lnal5pc_l	-.0145138	.0088064	-1.65	0.099	-.031774	.0027464
lnigdp5	-.1466104	.0998658	-1.47	0.142	-.3423438	.049123
ipolity2	.005909	.0037543	1.57	0.115	-.0014492	.0132672
lnipop	-.039516	.1042641	-0.38	0.705	-.24387	.1648379
_cons	1.891429	1.969794	0.96	0.337	-1.969296	5.752154

Instruments for differenced equation

GMM-type: L(2/3).lnimr L(2/2).lnad5pc L(2/2).lnad5pc_l L(2/2).lnwt5pc L(2/2).lnwt5pc_l
 L(2/2).lnal5pc

L(2/2).lnal5pc_l L(2/2).lnigdp5 L(2/2).ipolity2

Standard: D.lnipop

Instruments for level equation

Standard: _cons

Model 8: Latent Growth Model

Mixed-effects ML regression
Group variable: cc

Number of obs = 344
Number of groups = 75

Obs per group: min = 2
 avg = 4.6
 max = 5

Log likelihood = 198.74227
Wald chi2(10) = 154.12
Prob > chi2 = 0.0000

lnimr	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
lnad5pc	-.0084167	.0062912	-1.34	0.181	-.0207474	.0039139
lnad5pc_1	.0053544	.0053351	1.00	0.316	-.0051022	.0158109
lnwt5pc	.0061252	.0039121	1.57	0.117	-.0015424	.0137927
lnwt5pc_1	.0001083	.0036387	0.03	0.976	-.0070234	.0072399
lnal5pc	.0005259	.0063473	0.08	0.934	-.0119146	.0129663
lnal5pc_1	-.0011329	.0045693	-0.25	0.804	-.0100885	.0078227
lnigdp5	-.1936096	.0306528	-6.32	0.000	-.2536881	-.1335311
lnipop	-.0244479	.0229347	-1.07	0.286	-.069399	.0205032
ipolity2	.0003212	.001275	0.25	0.801	-.0021776	.0028201
t5	-.1029585	.0116539	-8.83	0.000	-.1257998	-.0801172
_cons	6.609265	.4594568	14.38	0.000	5.708747	7.509784

Random-effects Parameters	Estimate	Std. Err.	[95% Conf. Interval]	
cc: Unstructured				
sd(t5)	.0890187	.0077912	.0749862	.1056773
sd(_cons)	.3437582	.0305575	.2887937	.4091837
corr(t5,_cons)	-.4724584	.1046925	-.6512053	-.2440465
sd(Residual)	.0578047	.0029943	.052224	.0639817

LR test vs. linear regression: chi2(3) = 652.28 Prob > chi2 = 0.0000

Note: LR test is conservative and provided only for reference.

ALTERNATE ESTIMATES - Multiple Imputations (Infant Mortality)

Model (1): Bi-variate OLS

Multiple-imputation estimates	Imputations	=	20
Linear regression	Number of obs	=	547
	Average RVI	=	0.0000
	Complete DF	=	95
DF adjustment: Small sample	DF: min	=	93.06
	avg	=	93.06
	max	=	93.06
Model F test: Equal FMI	F(1, 93.1)	=	0.01
Within VCE type: Robust	Prob > F	=	0.9261

(Within VCE adjusted for 96 clusters in cc)

lnimr	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
lnad5pc	-.0022826	.0245499	-0.09	0.926	-.0510335 .0464682
_cons	4.215864	.0693644	60.78	0.000	4.078122 4.353607

Model (2): Multi-variate OLS

Multiple-imputation estimates	Imputations	=	20
Linear regression	Number of obs	=	547
	Average RVI	=	0.0317
	Complete DF	=	95
DF adjustment: Small sample	DF: min	=	87.50
	avg	=	89.40
	max	=	92.33
Model F test: Equal FMI	F(7, 92.8)	=	49.46
Within VCE type: Robust	Prob > F	=	0.0000

(Within VCE adjusted for 96 clusters in cc)

lnimr	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
lnad5pc	.0273132	.0153771	1.78	0.079	-.0032382 .0578647
lnwt5pc	-.0228126	.0145898	-1.56	0.121	-.051792 .0061668
lnal5pc	-.0244096	.0172178	-1.42	0.160	-.0586258 .0098067
lnigdp5	-.361453	.0333056	-10.85	0.000	-.427643 -.2952629
lnipop	-.0162481	.0226702	-0.72	0.475	-.0612709 .0287747
ipolity2	-.0097991	.0049342	-1.99	0.050	-.0196056 7.41e-06
t5	-.0944786	.0125687	-7.52	0.000	-.1194505 -.0695067
_cons	7.837793	.4420178	17.73	0.000	6.959529 8.716057

Model (3): First Differences (OLS)

Multiple-imputation estimates	Imputations	=	20
Linear regression	Number of obs	=	451
	Average RVI	=	0.1109
	Complete DF	=	95
DF adjustment: Small sample	DF: min	=	55.59
	avg	=	81.16
	max	=	92.98
Model F test: Equal FMI	F(6, 91.4)	=	3.75
Within VCE type: Robust	Prob > F	=	0.0022

(Within VCE adjusted for 96 clusters in cc)

D.lnimr	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc D1.	.0054715	.0025423	2.15	0.034	.0004205	.0105225
lnwt5pc D1.	-.0019053	.0017693	-1.08	0.284	-.0054199	.0016093
lnal5pc D1.	-.0077125	.0024194	-3.19	0.002	-.0125282	-.0028968
lnigdp5 D1.	-.0363253	.0209043	-1.74	0.088	-.0782086	.0055579
lnipop D1.	.2532151	.2038788	1.24	0.217	-.1516491	.6580793
ipolity2 D1.	.0008806	.0007514	1.17	0.245	-.000619	.0023801
t5 D1.	(omitted)					
_cons	-.1543287	.0251942	-6.13	0.000	-.2043598	-.1042976

Model (4): Fixed Effects

Multiple-imputation estimates	Imputations	=	20
Fixed-effects (within) regression	Number of obs	=	547
Group variable: cc	Number of groups	=	96
	Obs per group: min	=	2
	avg	=	5.7
	max	=	6
	Average RVI	=	0.6849
	Complete DF	=	95
DF adjustment: Small sample	DF: min	=	64.19
	avg	=	86.00
	max	=	92.78
Model F test: Equal FMI	F(7, 92.5)	=	33.72
Within VCE type: Robust	Prob > F	=	0.0000

(Within VCE adjusted for 96 clusters in cc)

lnimr	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc	.0235622	.008543	2.76	0.007	.0065967	.0405277
lnwt5pc	-.0150188	.0064353	-2.33	0.022	-.0278047	-.0022329
lnal5pc	-.0236671	.0076096	-3.11	0.003	-.0387869	-.0085474
lnigdp5	-.0894615	.0455112	-1.97	0.054	-.1803753	.0014524
lnipop	.5223297	.2290893	2.28	0.025	.0673895	.97727
ipolity2	.0007769	.0024147	0.32	0.749	-.0040332	.005587
t5	-.179954	.0277204	-6.49	0.000	-.2350072	-.1249007
_cons	-2.629166	3.6252	-0.73	0.470	-9.82874	4.570409
sigma_u	1.0691751					
sigma_e	.16108409					
rho	.97780476	(fraction of variance due to u_i)				

Note: sigma_u and sigma_e are combined in the original metric.

Model (5): Random Effects

Multiple-imputation estimates	Imputations	=	20
Random-effects GLS regression	Number of obs	=	547
Group variable: cc	Number of groups	=	96
	Obs per group: min	=	2
	avg	=	5.7
	max	=	6
	Average RVI	=	0.0746
DF adjustment: Large sample	DF: min	=	840.68
	avg	=	45428.81
	max	=	298404.14
Model F test: Equal FMI	F(7, 22408.8)	=	33.44
Within VCE type: Robust	Prob > F	=	0.0000

(Within VCE adjusted for 96 clusters in cc)

lnimr	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc	.0279131	.0080266	3.48	0.001	.0121808	.0436454
lnwt5pc	-.0136316	.006714	-2.03	0.042	-.0267932	-.0004701
lnal5pc	-.0261878	.0078443	-3.34	0.001	-.0415763	-.0107994
lnigdp5	-.2001142	.0503488	-3.97	0.000	-.2989384	-.1012899
lnipop	.0040247	.024652	0.16	0.870	-.0442924	.0523419
ipolity2	-.0019045	.0025671	-0.74	0.458	-.006943	.0031339
t5	-.113001	.010914	-10.35	0.000	-.1343938	-.0916082
_cons	6.279785	.5399355	11.63	0.000	5.220773	7.338797
sigma_u	.33155636					
sigma_e	.16108409					
rho	.80903354	(fraction of variance due to u_i)				

Note: sigma_u and sigma_e are combined in the original metric.

Model (6): OLS w/ Lagged Dependent Variable

Multiple-imputation estimates	Imputations	=	20
Linear regression	Number of obs	=	537
	Average RVI	=	0.0288
	Complete DF	=	95
DF adjustment: Small sample	DF: min	=	81.91
	avg	=	90.81
	max	=	92.61
Model F test: Equal FMI	F(8, 92.9)	=	254.74
Within VCE type: Robust	Prob > F	=	0.0000

(Within VCE adjusted for 96 clusters in cc)

lnimr	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
lnimr_l	.7272406	.0964271	7.54	0.000	.5357323	.9187489
lnad5pc	-.0043599	.0097878	-0.45	0.657	-.0237983	.0150786
lnwt5pc	-.0062883	.0093883	-0.67	0.505	-.0249326	.012356
lnal5pc	-.0241354	.0149598	-1.61	0.110	-.0538454	.0055746
lnigdp5	-.1419365	.033745	-4.21	0.000	-.2089727	-.0749003
lnipop	-.0144512	.0099327	-1.45	0.149	-.0341772	.0052748
ipolity2	-.0043875	.0023666	-1.85	0.067	-.0090955	.0003205
t5	-.019623	.0123969	-1.58	0.117	-.044246	.005
_cons	2.648995	.7726863	3.43	0.001	1.114275	4.183716

Model (7a): Dynamic Panel Model (Fixed Effects)

Multiple-imputation estimates	Imputations	=	20
Fixed-effects (within) regression	Number of obs	=	537
Group variable: cc	Number of groups	=	96
	Obs per group: min	=	2
	avg	=	5.6
	max	=	6
	Average RVI	=	0.3415
	Complete DF	=	95
DF adjustment: Small sample	DF: min	=	72.68
	avg	=	88.68
	max	=	92.98
Model F test: Equal FMI	F(8, 92.8)	=	51.57
Within VCE type: Robust	Prob > F	=	0.0000

(Within VCE adjusted for 96 clusters in cc)

lnimr	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
lnimr_l	.2917183	.0804934	3.62	0.000	.131874	.4515625
lnad5pc	.0116362	.0072065	1.61	0.110	-.0026748	.0259472
lnwt5pc	-.0118695	.0063775	-1.86	0.066	-.0245354	.0007964
lnal5pc	-.0270293	.0085249	-3.17	0.002	-.0439598	-.0100988
lnigdp5	-.0457105	.0309566	-1.48	0.144	-.1073569	.0159359
lnipop	.4225761	.1960732	2.16	0.034	.0332101	.8119422
ipolity2	.0000837	.0020845	0.04	0.968	-.004071	.0042384
t5	-.1355012	.0293883	-4.61	0.000	-.1938626	-.0771398
_cons	-2.804734	2.91175	-0.96	0.338	-8.58719	2.977721
sigma_u	.86942092					
sigma_e	.13955283					
rho	.9748829	(fraction of variance due to u_i)				

Note: sigma_u and sigma_e are combined in the original metric.

Model 8: Latent Growth Model

Multiple-imputation estimates	Imputations	=	20
Mixed-effects ML regression	Number of obs	=	547
Group variable: cc	Number of groups	=	96
	Obs per group: min	=	2
	avg	=	5.7
	max	=	6
DF adjustment: Large sample	Average RVI	=	0.0841
	DF: min	=	111.43
	avg	=	1.12e+06
	max	=	6.56e+06
Model F test: Equal FMI	F(7, 8878.6)	=	24.76
	Prob > F	=	0.0000

lnimr	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc	.0027273	.0033655	0.81	0.418	-.0038691	.0093237
lnwt5pc	.0009548	.0026186	0.36	0.715	-.0041775	.0060872
lnal5pc	-.0031456	.0032614	-0.96	0.335	-.0095386	.0032474
lnigdp5	-.0399004	.0174442	-2.29	0.024	-.0744657	-.0053351
lnipop	-.0140715	.020427	-0.69	0.491	-.0541077	.0259647
ipolity2	.000748	.001066	0.70	0.483	-.0013437	.0028397
t5	-.1211961	.0095411	-12.70	0.000	-.1398963	-.1024959
_cons	5.214958	.3524167	14.80	0.000	4.524011	5.905906

Random-effects Parameters	Estimate	Std. Err.	[95% Conf. Interval]	
cc: Unstructured				
sd(t5)	.0864288	.0065667	.0744707	.100307
sd(_cons)	.3655541	.0287984	.3132501	.4265915
corr(t5,_cons)	.0194318	.1118141	-.1971955	.23425
sd(Residual)	.0643976	.0024585	.0597549	.069401

ALTERNATE ESTIMATES – Contingent Effectiveness (Infant Mortality)

Model (1): Bi-variate OLS

Linear regression	Number of obs =	426
	F(1, 83) =	7.81
	Prob > F =	0.0065
	R-squared =	0.0248
	Root MSE =	.50619

(Std. Err. adjusted for 84 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc	-.0591759	.0211777	-2.79	0.006	-.1012976	-.0170543
_cons	4.413052	.0697819	63.24	0.000	4.274258	4.551845

Model (2): Multi-variate OLS

Linear regression	Number of obs =	393
	F(8, 74) =	23.32
	Prob > F =	0.0000
	R-squared =	0.5423
	Root MSE =	.34728

(Std. Err. adjusted for 75 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc	.0393668	.0285112	1.38	0.172	-.017443	.0961765
lnwt5pc	-.0104917	.0174684	-0.60	0.550	-.0452983	.024315
lnal5pc	-.0282246	.022768	-1.24	0.219	-.0735909	.0171417
lnigdp5	-.3255384	.0454893	-7.16	0.000	-.4161779	-.234899
lnipop	-.0590546	.0229525	-2.57	0.012	-.1047884	-.0133208
ipolity2	-.0018793	.008622	-0.22	0.828	-.0190591	.0153005
adpol	-.0029552	.0028814	-1.03	0.308	-.0086965	.002786
t5	-.1002245	.0175189	-5.72	0.000	-.1351317	-.0653173
_cons	8.278706	.4977312	16.63	0.000	7.286955	9.270457

. Model (3): First Differences (OLS)

Linear regression

Number of obs = 310
F(7, 74) = 2.32
Prob > F = 0.0340
R-squared = 0.1138
Root MSE = .10445

(Std. Err. adjusted for 75 clusters in cc)

D.lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc D1.	.0031501	.006107	0.52	0.608	-.0090182	.0153185
lnwt5pc D1.	-.0032074	.0023076	-1.39	0.169	-.0078054	.0013905
lnal5pc D1.	-.0036143	.0035565	-1.02	0.313	-.0107007	.0034722
lnigdp5 D1.	-.0803136	.0683913	-1.17	0.244	-.2165862	.055959
lnipop D1.	.6071204	.2401935	2.53	0.014	.1285244	1.085716
ipolity2 D1.	-.0004758	.0016266	-0.29	0.771	-.003717	.0027653
adpol D1.	.0004483	.0007262	0.62	0.539	-.0009986	.0018953
t5 D1.	(omitted)					
_cons	-.1861535	.0334948	-5.56	0.000	-.2528933	-.1194136

Model (4): Fixed Effects

Fixed-effects (within) regression
Group variable: cc

Number of obs = 393
Number of groups = 75

R-sq: within = 0.6614
between = 0.0059
overall = 0.0001

Obs per group: min = 3
avg = 5.2
max = 6

corr(u_i, Xb) = -0.9385

F(8,74) = 19.05
Prob > F = 0.0000

(Std. Err. adjusted for 75 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad5pc	.0081789	.0128423	0.64	0.526	-.01741	.0337678
lnwt5pc	-.0139444	.0086334	-1.62	0.111	-.0311468	.0032581
lnal5pc	-.0066424	.0093581	-0.71	0.480	-.0252888	.012004
lnigdp5	-.0833441	.0758235	-1.10	0.275	-.2344258	.0677375
lnipop	.8273127	.2953914	2.80	0.007	.2387325	1.415893
ipolity2	-.0011574	.0038229	-0.30	0.763	-.0087746	.0064598
adpol	.0007003	.001491	0.47	0.640	-.0022706	.0036712
t5	-.206472	.0409416	-5.04	0.000	-.2880499	-.1248942
_cons	-7.446766	4.779369	-1.56	0.123	-16.96987	2.076334
sigma_u	1.4257251					
sigma_e	.14963554					
rho	.98910468	(fraction of variance due to u_i)				

Model (5): Random Effects

```

Random-effects GLS regression              Number of obs   =    393
Group variable: cc                        Number of groups  =     75

R-sq:  within = 0.6144                    Obs per group: min =     3
        between = 0.4766                  avg =          5.2
        overall = 0.5260                  max =          6

Random effects u_i ~ Gaussian              Wald chi2(8)      =   162.18
corr(u_i, X) = 0 (assumed)                Prob > chi2       =    0.0000

```

(Std. Err. adjusted for 75 clusters in cc)

lnimr	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
lnad5pc	.0184462	.0146059	1.26	0.207	-.010181	.0470733
lnwt5pc	-.0106587	.0081479	-1.31	0.191	-.0266282	.0053109
lnal5pc	-.0132229	.0091407	-1.45	0.148	-.0311384	.0046926
lnigdp5	-.2398191	.0575508	-4.17	0.000	-.3526167	-.1270216
lnipop	-.0361489	.0244068	-1.48	0.139	-.0839854	.0116875
ipolity2	-.0022457	.0041075	-0.55	0.585	-.0102962	.0058049
adpol	-.0000507	.0015841	-0.03	0.974	-.0031554	.0030541
t5	-.0980783	.0134896	-7.27	0.000	-.1245175	-.0716392
_cons	7.184569	.6156346	11.67	0.000	5.977948	8.391191
sigma_u	.32008443					
sigma_e	.14963554					
rho	.82065102	(fraction of variance due to u_i)				

Model (6): OLS w/ Lagged Dependent Variable

```

Linear regression              Number of obs   =    330
                                F( 9, 74) = 1235.74
                                Prob > F      =    0.0000
                                R-squared       =    0.9653
                                Root MSE    =    .09787

```

(Std. Err. adjusted for 75 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnimr_l	1.074487	.0186598	57.58	0.000	1.037307	1.111667
lnad5pc	-.0156961	.0108971	-1.44	0.154	-.0374091	.0060169
lnwt5pc	-.0029353	.0048906	-0.60	0.550	-.0126801	.0068095
lnal5pc	.0069096	.0109682	0.63	0.531	-.014945	.0287641
lnigdp5	-.0139041	.0117496	-1.18	0.240	-.0373158	.0095076
lnipop	-.0123979	.0076701	-1.62	0.110	-.0276809	.0028852
ipolity2	.0003929	.002039	0.19	0.848	-.0036699	.0044557
adpol	-.0005428	.0007228	-0.75	0.455	-.001983	.0008975
t5	.008199	.0047566	1.72	0.089	-.0012787	.0176767
_cons	-.1642644	.2427314	-0.68	0.501	-.6479173	.3193885

Model (7a): Dynamic Panel Model (Fixed Effects)

```

Fixed-effects (within) regression      Number of obs      =      330
Group variable: cc                    Number of groups    =       75

R-sq:  within = 0.9028                Obs per group: min =        1
      between = 0.1427                  avg =       4.4
      overall  = 0.1933                  max =        6

corr(u_i, Xb) = -0.7772                F(9,74)            =     215.88
                                      Prob > F              =      0.0000

```

(Std. Err. adjusted for 75 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnimr_l	.8668076	.066451	13.04	0.000	.7344011	.9992142
lnad5pc	-.0107318	.008162	-1.31	0.193	-.0269949	.0055314
lnwt5pc	-.0018042	.0053079	-0.34	0.735	-.0123804	.008772
lnal5pc	-.008298	.0134376	-0.62	0.539	-.0350731	.018477
lnigdp5	.0181353	.0295065	0.61	0.541	-.0406577	.0769283
lnipop	.4446872	.1839258	2.42	0.018	.0782071	.8111673
ipolity2	.0006082	.0026987	0.23	0.822	-.004769	.0059854
adpol	-.0003863	.0011948	-0.32	0.747	-.0027671	.0019944
t5	-.0709453	.0269038	-2.64	0.010	-.1245523	-.0173383
_cons	-6.487435	2.686117	-2.42	0.018	-11.83964	-1.135229
sigma_u	.73813011					
sigma_e	.0756705					
rho	.98959968	(fraction of variance due to u_i)				

Model (7b): Dynamic Panel Model (Arellano-Bond)

```

Arellano-Bond dynamic panel-data estimation Number of obs      =     232
Group variable: cc                    Number of groups    =      73

Time variable: t5

Obs per group:  min =        1
                  avg =    3.178082
                  max =        4

Number of instruments =      33        Wald chi2(8)          =     492.60
                                      Prob > chi2            =      0.0000

```

Two-step results (Std. Err. adjusted for clustering on cc)

lnimr	Coef.	WC-Robust Std. Err.	z	P> z	[95% Conf. Interval]	
lnimr						
L1.	.8859935	.1157706	7.65	0.000	.6590873	1.1129
lnad5pc	-.0315138	.0226676	-1.39	0.164	-.0759416	.0129139
lnwt5pc	.0081911	.0089517	0.92	0.360	-.0093539	.0257361
lnal5pc	.0392987	.0253875	1.55	0.122	-.0104598	.0890573
lnigdp5	-.1884708	.1676698	-1.12	0.261	-.5170976	.1401559
ipolity2	.00333995	.0064265	0.53	0.597	-.0091962	.0159953
adpol	.0021805	.0030128	0.72	0.469	-.0037245	.0080856
lnipop	-.1293064	.1243618	-1.04	0.298	-.3730511	.1144384
_cons	3.778279	2.810236	1.34	0.179	-1.729684	9.286241

```

Instruments for differenced equation
  GMM-type: L(2/3).lnimr L(2/2).lnad5pc L(2/2).lnwt5pc L(2/2).lnal5pc L(2/2).lnigdp5
L(2/2).ipolity2
              L(2/2).adpol
Standard: D.lnipop
Instruments for level equation
Standard: _cons

```

Model 8: Latent Growth Model

Mixed-effects ML regression
Group variable: cc

Number of obs = 393
Number of groups = 75

Obs per group: min = 3
avg = 5.2
max = 6

Log likelihood = 242.40198

Wald chi2(8) = 164.89
Prob > chi2 = 0.0000

lnimr	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
lnad5pc	-.0045271	.0054973	-0.82	0.410	-.0153016	.0062475
lnwt5pc	.0040722	.0032027	1.27	0.204	-.002205	.0103493
lnal5pc	-.0011574	.0046213	-0.25	0.802	-.0102149	.0079002
lnigdp5	-.1778079	.0295681	-6.01	0.000	-.2357603	-.1198554
lnipop	-.0282326	.0221105	-1.28	0.202	-.0715683	.0151031
ipolity2	.0006992	.0016607	0.42	0.674	-.0025557	.0039541
adpol	.0000397	.0006509	0.06	0.951	-.001236	.0013155
t5	-.1024465	.0106372	-9.63	0.000	-.1232951	-.0815979
_cons	6.550141	.4438448	14.76	0.000	5.680221	7.420061

Random-effects Parameters	Estimate	Std. Err.	[95% Conf. Interval]	
cc: Unstructured				
sd(t5)	.083414	.0072318	.0703788	.0988634
sd(_cons)	.3164229	.0279374	.2661424	.3762025
corr(t5,_cons)	-.3725674	.1166479	-.576281	-.1252641
sd(Residual)	.0611966	.0028147	.0559211	.0669696

LR test vs. linear regression: chi2(3) = 759.70 Prob > chi2 = 0.0000

Note: LR test is conservative and provided only for reference.

ALTERNATE ESTIMATES – Quadratic Models

Model (1): Bi-variate OLS (with quadratic term)

Linear regression

Number of obs = 547
F(2, 95) = 2.88
Prob > F = 0.0613
R-squared = 0.0111
Root MSE = .57428

(Std. Err. adjusted for 96 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
ad5pc	-.0053971	.0036957	-1.46	0.147	-.0127339	.0019398
ad5pc_2	.0000155	.0000193	0.80	0.423	-.0000228	.0000539
_cons	4.263246	.0687579	62.00	0.000	4.126744	4.399747

Model (2): Multi-variate OLS

Linear regression

Number of obs = 476
F(8, 83) = 44.02
Prob > F = 0.0000
R-squared = 0.6558
Root MSE = .34

(Std. Err. adjusted for 84 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
ad5pc	.0154353	.0058855	2.62	0.010	.0037293	.0271413
ad5pc_2	-.0003046	.0001157	-2.63	0.010	-.0005348	-.0000745
lnwt5pc	-.0177363	.0151786	-1.17	0.246	-.047926	.0124534
lnal5pc	-.0127379	.0188066	-0.68	0.500	-.0501435	.0246678
lnigdp5	-.3731278	.0333604	-11.18	0.000	-.4394802	-.3067754
lnipop	-.051762	.0261311	-1.98	0.051	-.1037356	.0002117
ipolity2	-.0085083	.0050985	-1.67	0.099	-.0186491	.0016325
t5	-.0993081	.0132437	-7.50	0.000	-.1256493	-.0729669
_cons	8.398214	.4443568	18.90	0.000	7.514406	9.282022

Model (3): First Differences (OLS)

Linear regression

Number of obs = 392
F(7, 83) = 2.33
Prob > F = 0.0320
R-squared = 0.0457
Root MSE = .11223

(Std. Err. adjusted for 84 clusters in cc)

D.lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
ad5pc D1.	.0007635	.0009505	0.80	0.424	-.0011269	.002654
ad5pc_2 D1.	-.0000264	.0000194	-1.36	0.177	-.0000649	.0000121
lnwt5pc D1.	.0000466	.0019766	0.02	0.981	-.0038849	.003978
lnal5pc D1.	-.0076707	.003274	-2.34	0.022	-.0141825	-.0011589
lnigdp5 D1.	-.0957435	.0362743	-2.64	0.010	-.1678916	-.0235954
lnipop D1.	.1807329	.2146483	0.84	0.402	-.246194	.6076598
ipolity2 D1.	.0012616	.0009296	1.36	0.178	-.0005874	.0031106
t5 D1.	(omitted)					
_cons	-.1418172	.0271253	-5.23	0.000	-.1957683	-.0878662

Model (4): Fixed Effects

Fixed-effects (within) regression
Group variable: cc

Number of obs = 476
Number of groups = 84

R-sq: within = 0.6730
between = 0.0016
overall = 0.0063

Obs per group: min = 2
avg = 5.7
max = 6

corr(u_i, Xb) = -0.8057

F(8,83) = 27.93
Prob > F = 0.0000

(Std. Err. adjusted for 84 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
ad5pc	.0063316	.0031724	2.00	0.049	.0000218	.0126413
ad5pc_2	-.0001089	.000063	-1.73	0.087	-.0002341	.0000163
lnwt5pc	-.0079397	.0072465	-1.10	0.276	-.0223526	.0064732
lnal5pc	-.0227646	.0090951	-2.50	0.014	-.0408543	-.0046748
lnigdp5	-.1299524	.060779	-2.14	0.035	-.2508393	-.0090655
lnipop	.468102	.2649715	1.77	0.081	-.0589157	.9951196
ipolity2	.0019342	.0029529	0.65	0.514	-.0039391	.0078074
t5	-.1741895	.032907	-5.29	0.000	-.2396403	-.1087388
_cons	-1.545714	4.275942	-0.36	0.719	-10.05039	6.958962
sigma_u	.94271107					
sigma_e	.16303453					
rho	.97095956	(fraction of variance due to u_i)				

Model (5): Random Effects

Random-effects GLS regression
Group variable: cc

Number of obs = 476
Number of groups = 84

R-sq: within = 0.6459
between = 0.6498
overall = 0.6377

Obs per group: min = 2
avg = 5.7
max = 6

Random effects u_i ~ Gaussian
corr(u_i, X) = 0 (assumed)

Wald chi2(8) = 245.89
Prob > chi2 = 0.0000

(Std. Err. adjusted for 84 clusters in cc)

lnimr	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
ad5pc	.0090971	.0032134	2.83	0.005	.0027989	.0153953
ad5pc_2	-.0001576	.0000692	-2.28	0.023	-.0002933	-.0000219
lnwt5pc	-.0055601	.0072265	-0.77	0.442	-.0197238	.0086035
lnal5pc	-.0271552	.0093074	-2.92	0.004	-.0453974	-.0089129
lnigdp5	-.2815203	.0460596	-6.11	0.000	-.3717955	-.1912452
lnipop	-.0468308	.024165	-1.94	0.053	-.0941934	.0005318
ipolity2	-.0019383	.002949	-0.66	0.511	-.0077183	.0038417
t5	-.104542	.0133455	-7.83	0.000	-.1306986	-.0783853
_cons	7.684151	.4399425	17.47	0.000	6.821879	8.546422
sigma_u	.29499081					
sigma_e	.16303453					
rho	.76601851	(fraction of variance due to u_i)				

Model (6): OLS w/ Lagged Dependent Variable

Linear regression

Number of obs = 470
F(9, 83) = 206.96
Prob > F = 0.0000
R-squared = 0.8638
Root MSE = .21436

(Std. Err. adjusted for 84 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnimr_1	.6964175	.1094391	6.36	0.000	.4787474	.9140875
ad5pc	.0005291	.0032491	0.16	0.871	-.0059332	.0069914
ad5pc_2	-.0000335	.0000555	-0.60	0.548	-.000144	.000077
lnwt5pc	-.0028496	.0075867	-0.38	0.708	-.0179393	.01224
lnal5pc	-.022431	.0152279	-1.47	0.145	-.0527186	.0078567
lnigdp5	-.1560825	.0390964	-3.99	0.000	-.2338437	-.0783213
lnipop	-.0352692	.0126831	-2.78	0.007	-.0604954	-.0100431
ipolity2	-.0040331	.0024119	-1.67	0.098	-.0088302	.000764
t5	-.0174385	.0139444	-1.25	0.215	-.0451734	.0102963
_cons	3.20095	.9328431	3.43	0.001	1.345563	5.056338

Model (7a): Dynamic Panel Model (Fixed Effects)

Fixed-effects (within) regression
Group variable: cc
R-sq: within = 0.7654
between = 0.0104
overall = 0.0567
Number of obs = 470
Number of groups = 84
Obs per group: min = 2
avg = 5.6
max = 6
F(9,83) = 50.07
Prob > F = 0.0000
corr(u_i, Xb) = -0.7057

(Std. Err. adjusted for 84 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnimr_1	.3250212	.096919	3.35	0.001	.1322532	.5177891
ad5pc	.0031151	.0025489	1.22	0.225	-.0019545	.0081848
ad5pc_2	-.0000588	.0000449	-1.31	0.194	-.0001481	.0000306
lnwt5pc	-.0081241	.0057185	-1.42	0.159	-.019498	.0032498
lnal5pc	-.0282874	.0103418	-2.74	0.008	-.0488569	-.007718
lnigdp5	-.0434416	.0442017	-0.98	0.329	-.1313569	.0444738
lnipop	.3860979	.2086452	1.85	0.068	-.028889	.8010849
ipolity2	.0010129	.0023001	0.44	0.661	-.0035618	.0055876
t5	-.1269603	.0331279	-3.83	0.000	-.1928503	-.0610703
_cons	-2.462372	3.158745	-0.78	0.438	-8.744989	3.820244
sigma_u	.78114118					
sigma_e	.13868083					
rho	.969444	(fraction of variance due to u_i)				

Model (7b): Dynamic Panel Model (Arellano-Bond)

Arellano-Bond dynamic panel-data estimation
Group variable: cc
Time variable: t5
Number of obs = 309
Number of groups = 83
Obs per group: min = 1
avg = 3.722892
max = 4
Wald chi2(8) = 935.75
Prob > chi2 = 0.0000

Two-step results

(Std. Err. adjusted for clustering on cc)

lnimr	Coef.	WC-Robust Std. Err.	z	P> z	[95% Conf. Interval]	
lnimr L1.	.7984507	.0743037	10.75	0.000	.6528182	.9440832
ad5pc	-.0042456	.0055093	-0.77	0.441	-.0150436	.0065524
ad5pc_2	.0000354	.0000855	0.41	0.679	-.0001322	.0002031
lnwt5pc	.0002559	.011355	0.02	0.982	-.0219995	.0225113
lnal5pc	.0181165	.0169079	1.07	0.284	-.0150223	.0512553
lnigdp5	-.1266385	.1375215	-0.92	0.357	-.3961757	.1428987
ipolity2	.000324	.0068482	0.05	0.962	-.0130983	.0137463
lnipop	-.1207079	.1100354	-1.10	0.273	-.3363733	.0949575
_cons	3.658745	1.837365	1.99	0.046	.0575763	7.259914

Instruments for differenced equation

GMM-type: L(2/3).lnimr L(2/2).ad5pc L(2/2).ad5pc_2 L(2/2).lnwt5pc L(2/2).lnal5pc L(2/2).lnigdp5 L(2/2).ipolity2

Standard: D.lnipop

Instruments for level equation

Standard: _cons

Model 8: Latent Growth Model

Mixed-effects ML regression
Group variable: cc

Number of obs = 476
Number of groups = 84

Obs per group: min = 2
avg = 5.7
max = 6

Log likelihood = 273.47296

Wald chi2(8) = 214.51
Prob > chi2 = 0.0000

lnimr	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
ad5pc	-.0000167	.0013319	-0.01	0.990	-.0026272	.0025938
ad5pc_2	-.0000295	.0000266	-1.11	0.267	-.0000815	.0000225
lnwt5pc	.0025885	.0029619	0.87	0.382	-.0032167	.0083937
lnal5pc	-.0027366	.0038326	-0.71	0.475	-.0102484	.0047751
lnigdp5	-.1430453	.0227407	-6.29	0.000	-.1876162	-.0984745
lnipop	-.0523868	.0219682	-2.38	0.017	-.0954436	-.00933
ipolity2	.0007211	.0012351	0.58	0.559	-.0016998	.0031419
t5	-.1090989	.0101919	-10.70	0.000	-.1290747	-.0891231
_cons	6.616077	.3917802	16.89	0.000	5.848201	7.383952

Random-effects Parameters	Estimate	Std. Err.	[95% Conf. Interval]	
cc: Unstructured				
sd(t5)	.0852022	.0069636	.0725908	.1000046
sd(_cons)	.3351525	.0283754	.283907	.3956478
corr(t5,_cons)	-.2411893	.1275587	-.4711044	.0194135
sd(Residual)	.0665925	.0027538	.061408	.0722146

LR test vs. linear regression: chi2(3) = 861.66 Prob > chi2 = 0.0000

Note: LR test is conservative and provided only for reference.

ALTERNATE ESTIMATES – OLS By Year (Infant Mortality)

Note: Results graphed in Figure 2

Year=1980

Linear regression

Number of obs = 68
F(7, 67) = 26.50
Prob > F = 0.0000
R-squared = 0.6867
Root MSE = .23314

(Std. Err. adjusted for 68 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnimr_l	.500875	.2172793	2.31	0.024	.0671836	.9345664
lnad5pc	-.0247298	.0205652	-1.20	0.233	-.065778	.0163185
lnwt5pc	.0074237	.0165161	0.45	0.655	-.0255426	.04039
lnal5pc	.0164106	.0214767	0.76	0.447	-.0264571	.0592784
lnigdp5	-.138042	.0439144	-3.14	0.002	-.2256956	-.0503884
lnipop	-.0275283	.0217474	-1.27	0.210	-.0709364	.0158798
ipolity2	-.0073286	.0052388	-1.40	0.166	-.0177853	.0031281
t5	(omitted)					
_cons	3.648391	1.352658	2.70	0.009	.9484748	6.348307

Year=1985

Linear regression

Number of obs = 75
F(7, 74) = 356.57
Prob > F = 0.0000
R-squared = 0.9306
Root MSE = .1249

(Std. Err. adjusted for 75 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnimr_l	.9872456	.0622641	15.86	0.000	.8631815	1.11131
lnad5pc	-.0259881	.0148115	-1.75	0.083	-.0555007	.0035246
lnwt5pc	.019577	.0077774	2.52	0.014	.0040803	.0350738
lnal5pc	-.0074663	.0075255	-0.99	0.324	-.0224611	.0075286
lnigdp5	-.092066	.0276629	-3.33	0.001	-.1471857	-.0369464
lnipop	-.0321143	.0176643	-1.82	0.073	-.0673112	.0030826
ipolity2	.0044775	.003072	1.46	0.149	-.0016435	.0105986
t5	(omitted)					
_cons	1.221944	.7145919	1.71	0.091	-.2019114	2.645799

Year=1990

Linear regression

Number of obs = 76
F(7, 75) = 582.29
Prob > F = 0.0000
R-squared = 0.9795
Root MSE = .07799

(Std. Err. adjusted for 76 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnimr_1	1.028524	.0295517	34.80	0.000	.9696545	1.087394
lnad5pc	-.0077676	.0077985	-1.00	0.322	-.023303	.0077677
lnwt5pc	-.0113391	.0057241	-1.98	0.051	-.022742	.0000638
lnal5pc	.0089459	.0061939	1.44	0.153	-.003393	.0212849
lnigdp5	-.053094	.0170094	-3.12	0.003	-.0869785	-.0192094
lnipop	-.0057444	.0057238	-1.00	0.319	-.0171468	.0056581
ipolity2	-.0023788	.0018516	-1.28	0.203	-.0060673	.0013097
t5	(omitted)					
_cons	.260514	.258494	1.01	0.317	-.2544325	.7754606

Year=1995

Linear regression

Number of obs = 83
F(7, 82) = 40.90
Prob > F = 0.0000
R-squared = 0.7826
Root MSE = .27519

(Std. Err. adjusted for 83 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnimr_1	.3454258	.1651685	2.09	0.040	.016853	.6739986
lnad5pc	.044213	.0291417	1.52	0.133	-.0137592	.1021852
lnwt5pc	-.0220537	.0274549	-0.80	0.424	-.0766702	.0325629
lnal5pc	-.0329486	.0307729	-1.07	0.287	-.0941658	.0282686
lnigdp5	-.3050717	.0664143	-4.59	0.000	-.437191	-.1729524
lnipop	-.0308518	.0197269	-1.56	0.122	-.0700949	.0083914
ipolity2	-.0094518	.0047323	-2.00	0.049	-.0188658	-.0000378
t5	(omitted)					
_cons	5.797237	1.295564	4.47	0.000	3.219947	8.374527

Year=2000

Linear regression

Number of obs = 84
F(7, 83) = 248.72
Prob > F = 0.0000
R-squared = 0.9396
Root MSE = .15647

(Std. Err. adjusted for 84 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnimr_1	.9468591	.0975819	9.70	0.000	.7527726	1.140946
lnad5pc	.0308777	.0239442	1.29	0.201	-.0167464	.0785017
lnwt5pc	.0025869	.0132867	0.19	0.846	-.0238399	.0290136
lnal5pc	-.1068173	.0523572	-2.04	0.045	-.2109537	-.0026808
lnigdp5	-.0206477	.0431774	-0.48	0.634	-.1065258	.0652304
lnipop	-.0527821	.0211867	-2.49	0.015	-.0949217	-.0106426
ipolity2	.0012937	.0029691	0.44	0.664	-.0046117	.0071991
t5	(omitted)					
_cons	1.607467	1.174597	1.37	0.175	-.7287599	3.943693

Year=2005

Linear regression

Number of obs = 84
 F(7, 83) = 821.41
 Prob > F = 0.0000
 R-squared = 0.9770
 Root MSE = .1037

(Std. Err. adjusted for 84 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnimr_l	1.039654	.0358755	28.98	0.000	.9682995	1.111009
lnad5pc	-.012532	.0118191	-1.06	0.292	-.0360398	.0109757
lnwt5pc	-.0196737	.005809	-3.39	0.001	-.0312276	-.0081198
lnal5pc	.0218403	.0195365	1.12	0.267	-.0170169	.0606975
lnigdp5	-.0145231	.0249206	-0.58	0.562	-.0640892	.0350431
lnipop	-.006768	.0079776	-0.85	0.399	-.0226351	.0090991
ipolity2	-.0003892	.0024865	-0.16	0.876	-.0053347	.0045564
t5	(omitted)					
_cons	-.1373673	.3070993	-0.45	0.656	-.7481754	.4734408

ALTERNATE ESTIMATES – OLS By Year (Child Mortality)

Note: Results graphed in Figure 2

Year=1980

Linear regression

Number of obs = 68
F(7, 67) = 25.13
Prob > F = 0.0000
R-squared = 0.6971
Root MSE = .28261

(Std. Err. adjusted for 68 clusters in cc)

lncmr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lncmr_1	.5656762	.2531439	2.23	0.029	.0603989	1.070954
lnad5pc	-.041896	.0269416	-1.56	0.125	-.0956716	.0118796
lnwt5pc	.0230463	.020073	1.15	0.255	-.0170194	.0631121
lnal5pc	.0167236	.0281917	0.59	0.555	-.0395472	.0729944
lnigdp5	-.1935022	.0513485	-3.77	0.000	-.2959942	-.0910102
lnipop	-.0393359	.0265239	-1.48	0.143	-.0922778	.013606
ipolity2	-.0076634	.0061678	-1.24	0.218	-.0199745	.0046476
t5	(omitted)					
_cons	4.37853	1.547218	2.83	0.006	1.29027	7.466789

Year=1985

Linear regression

Number of obs = 75
F(7, 74) = 149.04
Prob > F = 0.0000
R-squared = 0.9162
Root MSE = .16845

(Std. Err. adjusted for 75 clusters in cc)

lncmr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lncmr_1	1.130099	.0810689	13.94	0.000	.9685659	1.291633
lnad5pc	-.0407172	.0176191	-2.31	0.024	-.075824	-.0056104
lnwt5pc	.0334301	.0117504	2.85	0.006	.0100169	.0568433
lnal5pc	-.0094798	.0127077	-0.75	0.458	-.0348005	.0158409
lnigdp5	-.1450289	.0333643	-4.35	0.000	-.2115087	-.078549
lnipop	-.0425864	.0203899	-2.09	0.040	-.0832142	-.0019585
ipolity2	.0050309	.0039197	1.28	0.203	-.0027793	.0128412
t5	(omitted)					
_cons	1.561515	.8034561	1.94	0.056	-.0394065	3.162436

Year=1990

Linear regression

Number of obs = 76
 F(7, 75) = 311.66
 Prob > F = 0.0000
 R-squared = 0.9593
 Root MSE = .13348

(Std. Err. adjusted for 76 clusters in cc)

lncmr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lncmr_l	1.151584	.0482947	23.84	0.000	1.055376	1.247792
lnad5pc	-.0033286	.0136808	-0.24	0.808	-.0305821	.0239248
lnwt5pc	-.0031067	.0103034	-0.30	0.764	-.0236321	.0174187
lnal5pc	.0092104	.0104059	0.89	0.379	-.0115192	.02994
lnigdp5	-.0966253	.0222604	-4.34	0.000	-.1409703	-.0522804
lnipop	-.004584	.010663	-0.43	0.669	-.0258258	.0166578
ipolity2	-.0062702	.002471	-2.54	0.013	-.0111926	-.0013478
t5	(omitted)					
_cons	.3947476	.4541892	0.87	0.388	-.5100438	1.299539

Year=1995

Linear regression

Number of obs = 83
 F(7, 82) = 54.56
 Prob > F = 0.0000
 R-squared = 0.8062
 Root MSE = .31199

(Std. Err. adjusted for 83 clusters in cc)

lncmr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lncmr_l	.4375846	.1835283	2.38	0.019	.0724883	.8026808
lnad5pc	.0740865	.0330533	2.24	0.028	.0083329	.1398401
lnwt5pc	-.0230337	.032297	-0.71	0.478	-.0872826	.0412152
lnal5pc	-.0424521	.0330976	-1.28	0.203	-.1082938	.0233896
lnigdp5	-.3573185	.0725428	-4.93	0.000	-.5016292	-.2130078
lnipop	-.0285831	.0224886	-1.27	0.207	-.0733201	.0161538
ipolity2	-.0124602	.005548	-2.25	0.027	-.0234969	-.0014234
t5	(omitted)					
_cons	6.145455	1.448073	4.24	0.000	3.264777	9.026134

Year=2000

Linear regression

Number of obs = 84
F(7, 83) = 240.45
Prob > F = 0.0000
R-squared = 0.9253
Root MSE = .20828

(Std. Err. adjusted for 84 clusters in cc)

lncmr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lncmr_l	1.134197	.0992365	11.43	0.000	.9368197	1.331574
lnad5pc	.0353661	.0284956	1.24	0.218	-.0213104	.0920427
lnwt5pc	.0006744	.0178521	0.04	0.970	-.0348326	.0361815
lnal5pc	-.1204546	.053506	-2.25	0.027	-.2268759	-.0140333
lnigdp5	-.0232773	.0479706	-0.49	0.629	-.1186889	.0721344
lnipop	-.0583994	.0223391	-2.61	0.011	-.1028309	-.0139678
ipolity2	.003336	.0041003	0.81	0.418	-.0048194	.0114913
t5	(omitted)					
_cons	1.341123	1.180681	1.14	0.259	-1.007205	3.689451

Year=2005

Linear regression

Number of obs = 84
F(7, 83) = 333.67
Prob > F = 0.0000
R-squared = 0.9553
Root MSE = .17276

(Std. Err. adjusted for 84 clusters in cc)

lncmr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lncmr_l	1.210589	.0571546	21.18	0.000	1.096911	1.324267
lnad5pc	-.0034905	.0194314	-0.18	0.858	-.0421388	.0351578
lnwt5pc	-.0264908	.0104893	-2.53	0.013	-.0473536	-.0056281
lnal5pc	.0072627	.0319748	0.23	0.821	-.056334	.0708594
lnigdp5	-.0240975	.0340726	-0.71	0.481	-.0918665	.0436714
lnipop	-.0053891	.0123898	-0.43	0.665	-.0300319	.0192537
ipolity2	.00171	.0038296	0.45	0.656	-.005907	.009327
t5	(omitted)					
_cons	-.3935185	.5133433	-0.77	0.446	-1.414538	.6275006

ALTERNATE ESTIMATES – OLS By Year (Life Expectancy)

Note: Results graphed in Figure 2

Year=1980

Linear regression

Number of obs = 74
F(7, 73) = 117.30
Prob > F = 0.0000
R-squared = 0.8739
Root MSE = .05399

(Std. Err. adjusted for 74 clusters in cc)

lnlifex	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnlifex_l	.6909592	.128523	5.38	0.000	.4348132	.9471052
lnad5pc	.0062647	.004696	1.33	0.186	-.0030945	.0156239
lnwt5pc	-.0012182	.0026425	-0.46	0.646	-.0064848	.0040483
lnal5pc	-.002457	.0040046	-0.61	0.541	-.0104382	.0055241
lnigdp5	.0328027	.0126205	2.60	0.011	.00765	.0579554
lnipop	.007935	.0050524	1.57	0.121	-.0021344	.0180044
ipolity2	.0017084	.0012022	1.42	0.160	-.0006876	.0041045
t5	(omitted)					
_cons	.8795589	.3725233	2.36	0.021	.137121	1.621997

Year=1985

Linear regression

Number of obs = 76
F(7, 75) = 281.42
Prob > F = 0.0000
R-squared = 0.9127
Root MSE = .04603

(Std. Err. adjusted for 76 clusters in cc)

lnlifex	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnlifex_l	.8387986	.1019637	8.23	0.000	.6356764	1.041921
lnad5pc	.0075729	.0041539	1.82	0.072	-.0007021	.0158479
lnwt5pc	-.0029637	.0026519	-1.12	0.267	-.0082466	.0023192
lnal5pc	.0002762	.0025941	0.11	0.915	-.0048915	.005444
lnigdp5	.0255896	.0109374	2.34	0.022	.0038012	.047378
lnipop	.0078405	.005378	1.46	0.149	-.0028731	.018554
ipolity2	.0000805	.0011826	0.07	0.946	-.0022753	.0024364
t5	(omitted)					
_cons	.345363	.2914466	1.18	0.240	-.2352284	.9259544

Year=1990

Linear regression

Number of obs = 77
F(7, 76) = 180.69
Prob > F = 0.0000
R-squared = 0.9116
Root MSE = .05218

(Std. Err. adjusted for 77 clusters in cc)

lnlifex	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnlifex_1	1.0304	.0471916	21.83	0.000	.9364098	1.12439
lnad5pc	.0002742	.0036198	0.08	0.940	-.0069354	.0074837
lnwt5pc	-.0025763	.0044623	-0.58	0.565	-.0114638	.0063111
lnal5pc	.0021235	.0037026	0.57	0.568	-.0052509	.0094979
lnigdp5	.0064664	.0041927	1.54	0.127	-.0018841	.0148169
lnipop	-.0015348	.0023368	-0.66	0.513	-.0061889	.0031193
ipolity2	.0005193	.0004989	1.04	0.301	-.0004742	.0015129
t5	(omitted)					
_cons	-.1298727	.1806339	-0.72	0.474	-.4896363	.2298909

Year=1995

Linear regression

Number of obs = 83
F(7, 82) = 90.28
Prob > F = 0.0000
R-squared = 0.9126
Root MSE = .05395

(Std. Err. adjusted for 83 clusters in cc)

lnlifex	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnlifex_1	.9266085	.0814845	11.37	0.000	.7645098	1.088707
lnad5pc	-.0049134	.0073124	-0.67	0.504	-.0194601	.0096332
lnwt5pc	-.0009684	.0042411	-0.23	0.820	-.0094053	.0074685
lnal5pc	.008256	.0054385	1.52	0.133	-.0025629	.0190749
lnigdp5	.0086498	.0101243	0.85	0.395	-.0114906	.0287902
lnipop	.0019817	.0035323	0.56	0.576	-.0050452	.0090087
ipolity2	.0014574	.0010067	1.45	0.151	-.0005452	.00346
t5	(omitted)					
_cons	.1750578	.2688543	0.65	0.517	-.359779	.7098946

Year=2000

Linear regression

Number of obs = 84
F(7, 83) = 59.09
Prob > F = 0.0000
R-squared = 0.8576
Root MSE = .06631

(Std. Err. adjusted for 84 clusters in cc)

lnlifex	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnlifex_1	.8304611	.1235448	6.72	0.000	.5847356	1.076187
lnad5pc	-.0066838	.0071548	-0.93	0.353	-.0209143	.0075467
lnwt5pc	-.005955	.004771	-1.25	0.215	-.0154444	.0035344
lnal5pc	.025011	.0087135	2.87	0.005	.0076801	.0423419
lnigdp5	.0030403	.0129056	0.24	0.814	-.0226283	.0287089
lnipop	.0132536	.0047523	2.79	0.007	.0038015	.0227058
ipolity2	-.0006605	.0013048	-0.51	0.614	-.0032557	.0019348
t5	(omitted)					
_cons	.3593588	.3930776	0.91	0.363	-.4224568	1.141174

Year=2005

Linear regression

Number of obs = 84
F(7, 83) = 339.70
Prob > F = 0.0000
R-squared = 0.9632
Root MSE = .03399

(Std. Err. adjusted for 84 clusters in cc)

lnlifex	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnlifex_1	1.024513	.0410147	24.98	0.000	.9429365	1.10609
lnad5pc	-.0063779	.0030267	-2.11	0.038	-.0123979	-.0003579
lnwt5pc	.0012031	.0021773	0.55	0.582	-.0031275	.0055337
lnal5pc	.0057684	.0047843	1.21	0.231	-.0037474	.0152843
lnigdp5	-.0143584	.0051363	-2.80	0.006	-.0245742	-.0041426
lnipop	.0004692	.0022928	0.20	0.838	-.004091	.0050294
ipolity2	.0001936	.0008028	0.24	0.810	-.0014031	.0017903
t5	(omitted)					
_cons	.0112209	.1441009	0.08	0.938	-.2753899	.2978318

ALTERNATE ESTIMATES – Sub-Sector Effects (Infant Mortality)

Note: Model 8 estimates are reported in Table 3

Model (1): Bi-variate OLS

Linear regression

Number of obs = 547
F(9, 95) = 4.14
Prob > F = 0.0002
R-squared = 0.0545
Root MSE = .5652

(Std. Err. adjusted for 96 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad15pc	-.029585	.0141629	-2.09	0.039	-.057702	-.0014681
lnad25pc	.0113171	.0142737	0.79	0.430	-.0170197	.0396539
lnad35pc	-.0031833	.015903	-0.20	0.842	-.0347548	.0283882
lnad45pc	.0202374	.0183733	1.10	0.273	-.0162383	.0567131
lnad55pc	.0407019	.0136495	2.98	0.004	.0136041	.0677996
lnad65pc	.0225359	.0144181	1.56	0.121	-.0060877	.0511595
lnad75pc	.0143285	.0199157	0.72	0.474	-.0252092	.0538662
lnad85pc	.0194377	.0210973	0.92	0.359	-.0224458	.0613212
lnad95pc	-.0059937	.0195689	-0.31	0.760	-.0448429	.0328556
_cons	4.302485	.0536176	80.24	0.000	4.196041	4.408929

Model (2): Multi-variate OLS

Linear regression

Number of obs = 476
F(15, 83) = 35.47
Prob > F = 0.0000
R-squared = 0.6615
Root MSE = .33974

(Std. Err. adjusted for 84 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad15pc	.0086891	.0095681	0.91	0.366	-.0103416	.0277197
lnad25pc	-.0030485	.008515	-0.36	0.721	-.0199846	.0138876
lnad35pc	.0027794	.0116365	0.24	0.812	-.0203651	.0259239
lnad45pc	.033585	.0136174	2.47	0.016	.0065005	.0606694
lnad55pc	.0086731	.0085381	1.02	0.313	-.0083089	.025655
lnad65pc	.0172952	.006766	2.56	0.012	.0038379	.0307526
lnad75pc	-.0011177	.0103101	-0.11	0.914	-.0216241	.0193886
lnad85pc	-.0083599	.0139323	-0.60	0.550	-.0360706	.0193509
lnad95pc	.0075444	.0115215	0.65	0.514	-.0153713	.0304602
lnwt5pc	-.0220102	.016082	-1.37	0.175	-.0539967	.0099763
lnal5pc	.0048924	.0161604	0.30	0.763	-.02725	.0370347
lnigdp5	-.3692865	.0331827	-11.13	0.000	-.4352854	-.3032875
lnipop	-.0357394	.0250415	-1.43	0.157	-.085546	.0140672
ipolity2	-.0081076	.0048384	-1.68	0.098	-.0177311	.0015158
t5	-.094626	.0152646	-6.20	0.000	-.1249866	-.0642653
_cons	8.122664	.4182302	19.42	0.000	7.290821	8.954507

Model (3): First Differences (OLS)

Linear regression

Number of obs = 392
F(14, 83) = 3.78
Prob > F = 0.0001
R-squared = 0.0623
Root MSE = .11227

(Std. Err. adjusted for 84 clusters in cc)

D.lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad15pc D1.	.00419	.0016966	2.47	0.016	.0008155	.0075645
lnad25pc D1.	-.001215	.0016904	-0.72	0.474	-.0045771	.0021471
lnad35pc D1.	-.0001237	.0019594	-0.06	0.950	-.004021	.0037735
lnad45pc D1.	.0004002	.003235	0.12	0.902	-.0060341	.0068344
lnad55pc D1.	-.0011623	.00183	-0.64	0.527	-.0048021	.0024774
lnad65pc D1.	-.0007761	.0017219	-0.45	0.653	-.0042009	.0026487
lnad75pc D1.	-.0041958	.0017053	-2.46	0.016	-.0075876	-.0008041
lnad85pc D1.	-.0052714	.0021193	-2.49	0.015	-.0094867	-.0010562
lnad95pc D1.	-.0003096	.0016899	-0.18	0.855	-.0036708	.0030516
lnwt5pc D1.	-.0003713	.0023565	-0.16	0.875	-.0050582	.0043156
lnal5pc D1.	-.008857	.0032565	-2.72	0.008	-.0153339	-.00238
lnigdp5 D1.	-.0952636	.0371524	-2.56	0.012	-.1691582	-.021369
lnipop D1.	.1788703	.2197775	0.81	0.418	-.2582583	.6159989
ipolity2 D1.	.0014513	.000921	1.58	0.119	-.0003806	.0032832
t5 D1.	(omitted)					
_cons	-.1438376	.0273727	-5.25	0.000	-.1982809	-.0893944

Model (4): Fixed Effects

Fixed-effects (within) regression	Number of obs	=	476
Group variable: cc	Number of groups	=	84
R-sq: within = 0.6755	Obs per group: min	=	2
between = 0.0024	avg	=	5.7
overall = 0.0047	max	=	6
corr(u_i, Xb) = -0.8202	F(15,83)	=	17.04
	Prob > F	=	0.0000

(Std. Err. adjusted for 84 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnad15pc	.0064071	.0044912	1.43	0.157	-.0025258	.0153399
lnad25pc	-.0066357	.0055484	-1.20	0.235	-.0176711	.0043998
lnad35pc	-.0014641	.0064195	-0.23	0.820	-.0142322	.011304
lnad45pc	.006245	.0066967	0.93	0.354	-.0070745	.0195645
lnad55pc	-.0017675	.0046932	-0.38	0.707	-.011102	.007567
lnad65pc	.0105246	.0054867	1.92	0.059	-.0003881	.0214374
lnad75pc	-.0018504	.0047859	-0.39	0.700	-.0113693	.0076686
lnad85pc	-.0077231	.0069013	-1.12	0.266	-.0214495	.0060034
lnad95pc	.0008919	.0055186	0.16	0.872	-.0100843	.0118681
lnwt5pc	-.0071022	.0072001	-0.99	0.327	-.0214229	.0072184
lnal5pc	-.0175964	.0086664	-2.03	0.046	-.0348335	-.0003593
lnigdp5	-.1289579	.0598889	-2.15	0.034	-.2480746	-.0098413
lnipop	.4868758	.2667553	1.83	0.072	-.0436897	1.017441
ipolity2	.0024964	.0030519	0.82	0.416	-.0035738	.0085665
t5	-.1765631	.0335703	-5.26	0.000	-.2433331	-.1097931
_cons	-1.841363	4.293878	-0.43	0.669	-10.38171	6.698987
sigma_u	.97741895					
sigma_e	.16391436					
rho	.9726456	(fraction of variance due to u_i)				

Model (5): Random Effects

Random-effects GLS regression
Group variable: cc

Number of obs = 476
Number of groups = 84

R-sq: within = 0.6469
between = 0.6497
overall = 0.6389

Obs per group: min = 2
avg = 5.7
max = 6

Random effects u_i ~ Gaussian
corr(u_i, X) = 0 (assumed)

Wald chi2(15) = 279.61
Prob > chi2 = 0.0000

(Std. Err. adjusted for 84 clusters in cc)

lnimr	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
lnad15pc	.0077067	.0050276	1.53	0.125	-.0021472	.0175606
lnad25pc	-.0065216	.0056444	-1.16	0.248	-.0175844	.0045411
lnad35pc	.0015933	.0066714	0.24	0.811	-.0114824	.0146689
lnad45pc	.0080653	.0078296	1.03	0.303	-.0072803	.023411
lnad55pc	.0011572	.0053142	0.22	0.828	-.0092583	.0115728
lnad65pc	.0121662	.0054682	2.22	0.026	.0014488	.0228836
lnad75pc	-.0006831	.0051366	-0.13	0.894	-.0107506	.0093845
lnad85pc	-.0098804	.0076858	-1.29	0.199	-.0249444	.0051835
lnad95pc	.0032914	.005107	0.64	0.519	-.0067181	.013301
lnwt5pc	-.0051483	.0074473	-0.69	0.489	-.0197447	.009448
lnal5pc	-.0189439	.0090634	-2.09	0.037	-.0367078	-.0011799
lnigdp5	-.2832837	.0453281	-6.25	0.000	-.3721252	-.1944423
lnipop	-.0485011	.0256611	-1.89	0.059	-.0987961	.0017938
ipolity2	-.0014946	.0031121	-0.48	0.631	-.0075941	.0046049
t5	-.1006288	.0135579	-7.42	0.000	-.1272017	-.0740559
_cons	7.72484	.4510113	17.13	0.000	6.840875	8.608806
sigma_u	.29360726					
sigma_e	.16391436					
rho	.76238461	(fraction of variance due to u_i)				

Model (6): OLS w/ Lagged Dependent Variable

Linear regression

Number of obs = 470
F(16, 83) = 142.91
Prob > F = 0.0000
R-squared = 0.8655
Root MSE = .21464

(Std. Err. adjusted for 84 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnimr_l	.691253	.1110522	6.22	0.000	.4703746	.9121314
lnad15pc	.0058024	.0050098	1.16	0.250	-.0041619	.0157668
lnad25pc	.0071054	.0048697	1.46	0.148	-.0025802	.016791
lnad35pc	.0017799	.0050272	0.35	0.724	-.008219	.0117789
lnad45pc	.0065622	.0078945	0.83	0.408	-.0091397	.0222641
lnad55pc	.0037297	.0041148	0.91	0.367	-.0044544	.0119138
lnad65pc	.005174	.0043204	1.20	0.234	-.0034191	.0137672
lnad75pc	-.006122	.0050607	-1.21	0.230	-.0161876	.0039435
lnad85pc	-.009136	.0055422	-1.65	0.103	-.0201593	.0018874
lnad95pc	-.000475	.0048738	-0.10	0.923	-.0101689	.0092189
lnwt5pc	-.0060312	.0083311	-0.72	0.471	-.0226015	.010539
lnal5pc	-.0218543	.0134701	-1.62	0.109	-.0486458	.0049372
lnigdp5	-.1586595	.0388085	-4.09	0.000	-.2358481	-.0814709
lnipop	-.0255565	.0127897	-2.00	0.049	-.0509948	-.0001183
ipolity2	-.0045381	.002371	-1.91	0.059	-.009254	.0001778
t5	-.0163016	.0135416	-1.20	0.232	-.0432353	.0106321
_cons	3.093292	.8839831	3.50	0.001	1.335085	4.851499

Model (7a): Dynamic Panel Model (Fixed Effects)

Fixed-effects (within) regression	Number of obs	=	470
Group variable: cc	Number of groups	=	84
R-sq: within = 0.7688	Obs per group: min	=	2
between = 0.0103	avg	=	5.6
overall = 0.0564	max	=	6
corr(u_i, Xb) = -0.7078	F(16,83)	=	32.12
	Prob > F	=	0.0000

(Std. Err. adjusted for 84 clusters in cc)

lnimr	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
lnimr_l	.3314227	.0965661	3.43	0.001	.1393566	.5234888
lnad15pc	.0050003	.0036491	1.37	0.174	-.0022577	.0122583
lnad25pc	.0010803	.0048891	0.22	0.826	-.0086439	.0108045
lnad35pc	-.0037131	.0044969	-0.83	0.411	-.0126572	.0052311
lnad45pc	.0016323	.0052723	0.31	0.758	-.0088541	.0121188
lnad55pc	-.001747	.0039708	-0.44	0.661	-.0096448	.0061508
lnad65pc	.0061638	.0048199	1.28	0.205	-.0034227	.0157503
lnad75pc	-.0057432	.003647	-1.57	0.119	-.012997	.0015106
lnad85pc	-.0085448	.005065	-1.69	0.095	-.018619	.0015293
lnad95pc	.0016059	.0041223	0.39	0.698	-.0065932	.0098049
lnwt5pc	-.0070111	.0059174	-1.18	0.239	-.0187805	.0047583
lnal5pc	-.0273222	.0096279	-2.84	0.006	-.0464716	-.0081727
lnigdp5	-.0437059	.0438466	-1.00	0.322	-.130915	.0435033
lnipop	.3846569	.2137481	1.80	0.076	-.0404795	.8097933
ipolity2	.001494	.0023907	0.62	0.534	-.0032611	.006249
t5	-.1259062	.033561	-3.75	0.000	-.1926577	-.0591547
_cons	-2.463091	3.24691	-0.76	0.450	-8.921064	3.994882
sigma_u	.78395775					
sigma_e	.13896177					
rho	.9695372	(fraction of variance due to u_i)				

Model (7b): Dynamic Panel Model (Arellano-Bond)

Arellano-Bond dynamic panel-data estimation Number of obs = 309
 Group variable: cc Number of groups = 83
 Time variable: t5

Obs per group: min = 1
 avg = 3.722892
 max = 4

Number of instruments = 60 Wald chi2(15) = 2447.93
 Prob > chi2 = 0.0000

Two-step results

(Std. Err. adjusted for clustering on cc)

lnimr	Coef.	WC-Robust Std. Err.	z	P> z	[95% Conf. Interval]	
lnimr						
L1.	.8732386	.0645954	13.52	0.000	.746634	.9998432
lnad15pc	.0015989	.0058901	0.27	0.786	-.0099454	.0131433
lnad25pc	.0003739	.0073988	0.05	0.960	-.0141275	.0148753
lnad35pc	.0011835	.0067624	0.18	0.861	-.0120705	.0144376
lnad45pc	-.0103358	.0154555	-0.67	0.504	-.0406281	.0199565
lnad55pc	.0010637	.0063466	0.17	0.867	-.0113754	.0135027
lnad65pc	-.0017931	.0046541	-0.39	0.700	-.010915	.0073287
lnad75pc	-.0096876	.0047198	-2.05	0.040	-.0189382	-.000437
lnad85pc	-.0004843	.00576	-0.08	0.933	-.0117736	.010805
lnad95pc	-.0018541	.0091643	-0.20	0.840	-.0198158	.0161076
lnwt5pc	.0041451	.0098906	0.42	0.675	-.01524	.0235303
lnal5pc	.0364313	.0189535	1.92	0.055	-.0007169	.0735795
lnigdp5	-.1520547	.0767611	-1.98	0.048	-.3025036	-.0016058
ipolity2	.0002125	.0039553	0.05	0.957	-.0075398	.0079647
lnipop	-.0677204	.1207742	-0.56	0.575	-.3044335	.1689926
_cons	2.541573	1.955332	1.30	0.194	-1.290806	6.373953

Instruments for differenced equation

GMM-type: L(2/3).lnimr L(2/2).lnad15pc L(2/2).lnad25pc L(2/2).lnad35pc L(2/2).lnad45pc
 L(2/2).lnad55pc L(2/2).lnad65pc L(2/2).lnad75pc L(2/2).lnad85pc L(2/2).lnad95pc
 L(2/2).lnwt5pc L(2/2).lnal5pc L(2/2).lnigdp5 L(2/2).ipolity2

Standard: D.lnipop

Instruments for level equation

Standard: _cons

Model 8: Latent Growth Model

Mixed-effects ML regression
Group variable: cc

Number of obs = 476
Number of groups = 84

Obs per group: min = 2
avg = 5.7
max = 6

Log likelihood = 288.00918

Wald chi2(15) = 236.90
Prob > chi2 = 0.0000

lnimr	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
lnad15pc	.002453	.0024138	1.02	0.310	-.0022779	.007184
lnad25pc	-.0021882	.0023419	-0.93	0.350	-.0067783	.0024018
lnad35pc	-.0004396	.0025109	-0.18	0.861	-.0053609	.0044817
lnad45pc	-.0021255	.0027619	-0.77	0.442	-.0075387	.0032876
lnad55pc	-.0013886	.0020124	-0.69	0.490	-.0053329	.0025557
lnad65pc	-.0048275	.0021924	-2.20	0.028	-.0091246	-.0005304
lnad75pc	-.0069645	.0023146	-3.01	0.003	-.0115011	-.002428
lnad85pc	-.009485	.0026801	-3.54	0.000	-.014738	-.0042321
lnad95pc	-.0026064	.002445	-1.07	0.286	-.0073985	.0021857
lnwt5pc	.0021522	.0028935	0.74	0.457	-.003519	.0078233
lnal5pc	-.0065306	.0035669	-1.83	0.067	-.0135216	.0004604
lnigdp5	-.1242528	.0224482	-5.54	0.000	-.1682504	-.0802551
lnipop	-.0547477	.0223118	-2.45	0.014	-.098478	-.0110175
ipolity2	.0009941	.0011739	0.85	0.397	-.0013066	.0032949
t5	-.1139014	.0103786	-10.97	0.000	-.134243	-.0935598
_cons	6.512003	.3944289	16.51	0.000	5.738936	7.285069

Random-effects Parameters	Estimate	Std. Err.	[95% Conf. Interval]	
cc: Unstructured				
sd(t5)	.086975	.00707	.0741656	.1019968
sd(_cons)	.337795	.0286347	.2860865	.3988495
corr(t5,_cons)	-.1893737	.1288805	-.4249229	.0701939
sd(Residual)	.0629101	.002608	.0580007	.0682351

LR test vs. linear regression: chi2(3) = 882.81 Prob > chi2 = 0.0000

Note: LR test is conservative and provided only for reference.