

Labor Outflows and Economic Convergence in NMS: Theoretical and Historical Perspectives

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Motivation

- Labor outflows have been large for some NMS.
- NMS and ***recipient countries*** are concerned with the economic and social consequences of outward migration.
- Consequences might be greater in the future, when EU immigration policies expected to be relaxed.

In this paper, I try to address four main questions:

1. What does economic theory suggest for possible outcomes?
2. Do the NMS appear to be heading toward good or bad outcomes?
3. Is their outward migration experience unusual?
4. How important is outward migration in the overall convergence process?

Overview

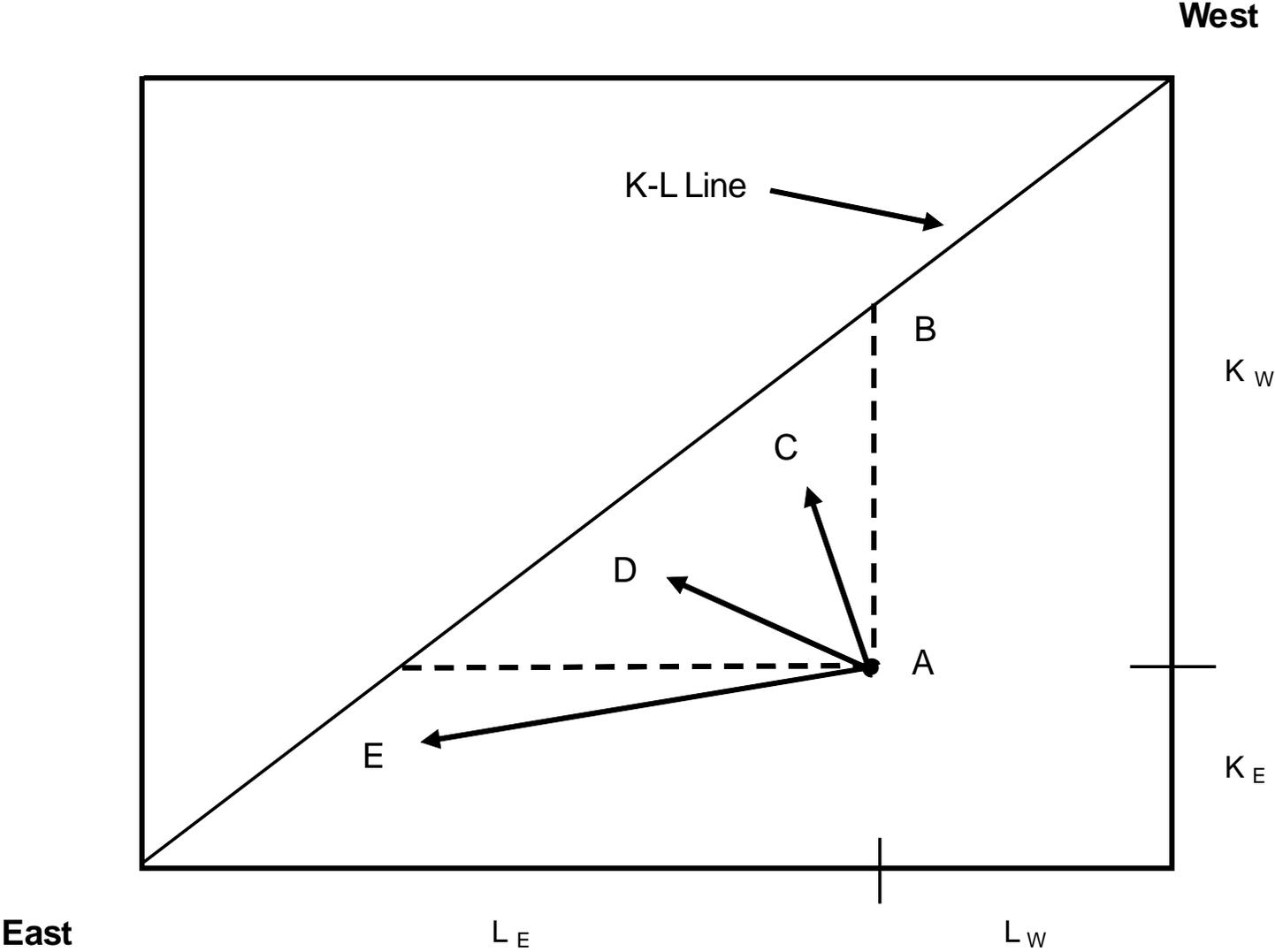
- **Theoretical Perspectives on Labor Migration**
- **Experiences of the NMS**
- **Comparison to Other Episodes of Economic Convergence**
- **A Theoretical Model of Convergence**
- **Calibration and Predictions**

I. Theoretical Perspectives

Growth and Economic Geography

- There is an extensive literature based on micro-economic explanations (at the household level) of the decision to migrate.
- In this paper, I focus on more macro explanations, focusing on the role of migration in *economic convergence*.
- The literature suggests several possible outcomes, summarized in the next figure.

Figure 1. Capital, Labor, and Convergence Between East and West



- The horizontal axis shows the *initial* distribution of labor between East and West, while the vertical axis shows the distribution of capital.
- The K-L line indicates all combinations of capital and labor, where the K/L ratio is the same in both regions.
- In contrast, point A indicates that the East has relatively too much labor, and relatively too little capital.
- As a result, wages are relatively low, and the return to capital is relatively high.

Convergence or Divergence?

- What are the possible outcomes for the East?
- No convergence – relatively no capital inflows, relatively little change in labor.
- The usual type of convergence, with large capital inflows from the West
 - No labor outflows – point B
 - Some or moderate outflows – point C or D.
- Convergence – but both capital and labor outflows! – the “national park” case.

II. Experiences of the NMS

Net migration has been greatest for lower-income countries.....

Table 1. New Member States: Relative Income in 1995 and Subsequent Population Changes (annual average)

	Per Capita Income	Changes in Population, 1995-2007		
	Relative to EU-15, 1995	Pop. Growth Rate	Natural Increase ¹	Net Migration Rate ¹
Latvia	-0.71	-0.7	-5.4	-1.9
Lithuania	-0.65	-0.6	-2.3	-3.7
Estonia	-0.65	-0.6	-3.6	-2.3
Poland	-0.58	-0.1	0.3	-1.2
Slovak Republic	-0.52	0.1	0.5	0.1
Hungary	-0.47	-0.2	-3.7	1.5
Slovenia	-0.30	0.1	-0.3	1.7
Czech Republic	-0.28	0.0	-1.3	1.7

¹ Per 1,000 inhabitants

Sources: Eurostat and author's calculations

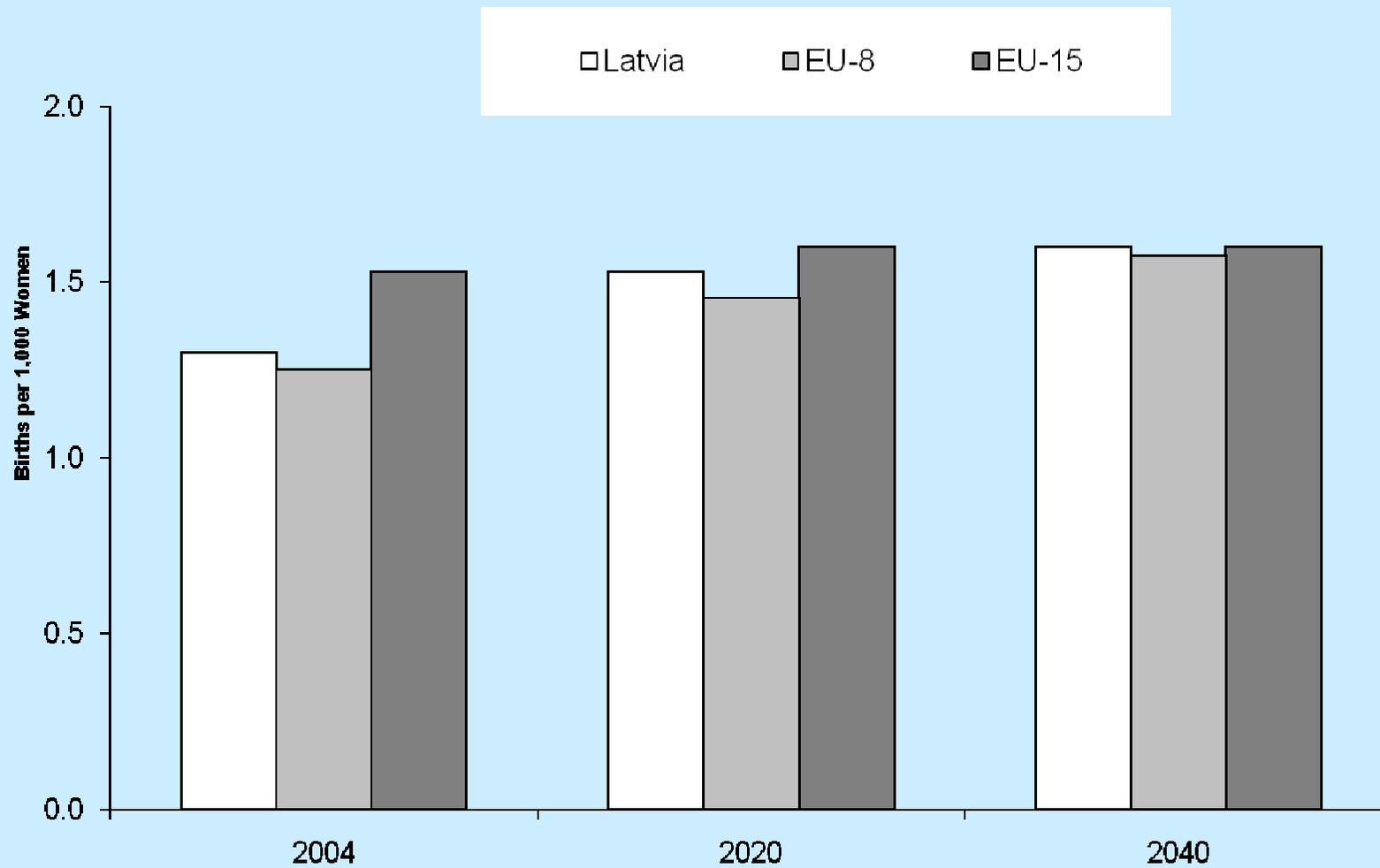
And net migration is also positively correlated with increases in relative incomes

Table 2. New Member States: Change in Relative Income and Net Migration
(percent, annual average)

	Relative Income per Capita			Net Migration Rate
	1995	2006	Change	
Estonia	-0.65	-0.41	0.23	-2.3
Latvia	-0.71	-0.51	0.20	-1.9
Lithuania	-0.65	-0.48	0.17	-3.7
Hungary	-0.47	-0.34	0.12	1.5
Slovak Republic	-0.52	-0.40	0.11	0.1
Slovenia	-0.30	-0.19	0.11	1.7
Poland	-0.58	-0.49	0.09	-1.2
Czech Republic	-0.28	-0.23	0.05	1.7

Sources: Eurostat and author's calculations

Figure 2. Selected European Countries: Fertility Rates



•Source: European Commission and IMF staff calculations

But, capital inflows have been much more important in increasing K/L ratios

Table 3. New Member States: Change in Capital-to-Labor Ratios, 1995-2006
(in constant US\$)

	Capital per Worker in			Average Annual %Δ in		
	1995	2006	Ratio	K/L	K	L
Latvia	9,316	26,543	2.8	16.8	14.3	-0.9
Estonia	11,881	33,110	2.8	16.2	14.6	-0.6
Lithuania	10,334	22,121	2.1	10.4	8.6	-0.8
Slovak Republic	13,684	27,339	2.0	9.1	10.5	0.7
Czech Republic	21,964	41,219	1.9	8.0	8.2	0.1
Poland	14,740	27,106	1.8	7.6	7.4	-0.1
Hungary	20,404	36,144	1.8	7.0	7.1	0.0
Slovenia	41,105	64,051	1.6	5.1	6.2	0.7

Sources: World Bank Social Development Indicators, WEO, and author's calculations.

III. Historical Episodes of Economic Convergence

Disparities were also large in 1870.... (relative to New World)

Convergence During the Age of Mass Migration, 1870-1910

	Real Wages		GDP per Worker	
	1870	1910	1870	1910
Denmark	0.31	0.58	0.50	0.55
Ireland	0.43	0.54	--	--
Italy	0.23	0.29	0.39	0.37
Norway	0.24	0.41	0.47	0.44
Sweden	0.24	0.59	0.47	0.47
Average	0.29	0.48	0.46	0.46

Source: Taylor and Williamson (1994) and staff calculations.

And, emigrants responded strongly (similar to the NMS experiences)

Demographic Impacts During the Age of Mass Migration, 1870-1910

Country	Average Net Migration Rates		Cumulative Percent Change	
	Population	Labor Force	Population	Labor Force
Denmark	-2.4	-3.2	-9	-12
Ireland	-10.1	-13.3	-33	-41
Italy	-6.8	-8.5	-23	-29
Norway	-4.8	-6.2	-17	-22
Sweden	-3.8	-5.0	-14	-18

Source: Taylor and Williamson (1994)

Net migration had strong effects, but convergence was a lengthy process

Impact of Migration on Convergence Measures, 1870-1910
(percent of total change)

	<u>On Real Wages</u>	<u>On GDP per Worker</u>
Denmark	9	5
Ireland	31	20
Italy	23	15
Norway	12	8
Sweden	10	6

Source: Taylor and Williamson (1994).

Little Role for Labor in Convergence of EU Countries or Asian Tigers

Table 9. Selected Countries: Changes in the Capital-to-Labor Ratio, 1960-2000

	K/L in 1960	K/L in 2000	Ratio	Average Annual %Δ in		
				K/L	K	L
Greece	13,044	71,259	5.5	4.4	5.2	0.8
Ireland	23,524	103,721	4.4	3.8	4.7	0.9
Portugal	14,084	59,254	4.2	3.7	4.7	1.0
Spain	16,455	87,514	5.3	4.3	5.3	1.0
Korea	2,646	58,137	22.0	8.1	11.0	2.7
Singapore	4,880	138,803	28.4	8.8	12.4	3.3

Sources: Bosworth and Collins (2003) and staff calculations.

Reunification of Germany: Significant Inward and Outward Migration

Table 7. Demographic Impacts in East Germany, 1989-1999

	<u>Average Annual Net Migration Rate</u>	<u>Percent Change in Population</u>
Between East and West	-6.6	-7.2
From Abroad	2.3	2.5
Total Net Migration	-4.3	-4.7

Source: Burda and Hunt (2001) and author's calculations.

IV. A Model of Economic Convergence

What is the Role of Migration?

- Use a growth model rather than traditional macro model, since NMS are in transition
- Highlights the role of capital inflows
- Migration is endogenous – a function of income differentials
- Would like the model to have different types of workers
 - High skilled versus low skilled workers
 - Little experience versus more experience

The Model

$$Y_t = (A_t L_t)^\alpha K_{t-1}^{1-\alpha}$$

$$k_t = K_t / A_t L_t$$

$$\Delta A_t / A_{t-1} = g_t$$

$$g_t = \bar{g} + g^* \left(\frac{k_{t-1}}{k_{t-1}^W} - 1 \right)$$

Capital and Labor Movements

$$\Delta K_t = \theta_t Y_t - \delta K_{t-1}$$

$$\theta_t = \bar{\theta} + \theta * \left(\frac{k_{t-1}}{k_{t-1}^W} - 1 \right)$$

$$\Delta L_t / L_{t-1} = n + m_t$$

$$m_t = \mu * \frac{(Y/L)_{t-1} - (Y/L)_{t-1}^W}{(Y/L)_{t-1}^W}$$

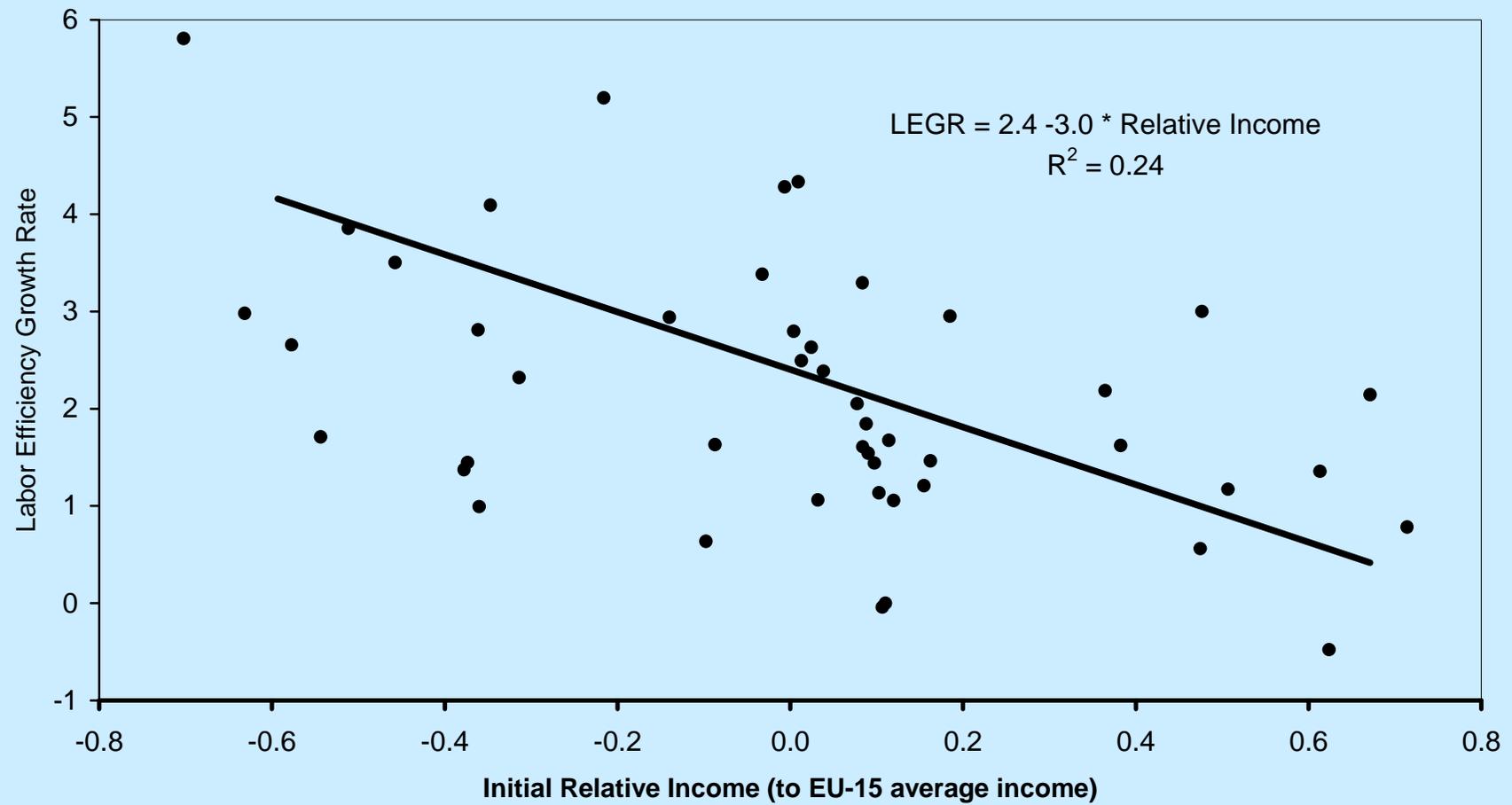
Long-run Parameter Values

Table 8. EU-15: Parameter Values Consistent with the Solow Growth Model
(average values, 1995-2000)

Parameter		Value (percent)
Labor's share of output	α	65
Depreciation rate	δ	5
Investment rate	θ	20
Labor efficiency growth rate	g	1.7
Natural rate of increase	n	0.6

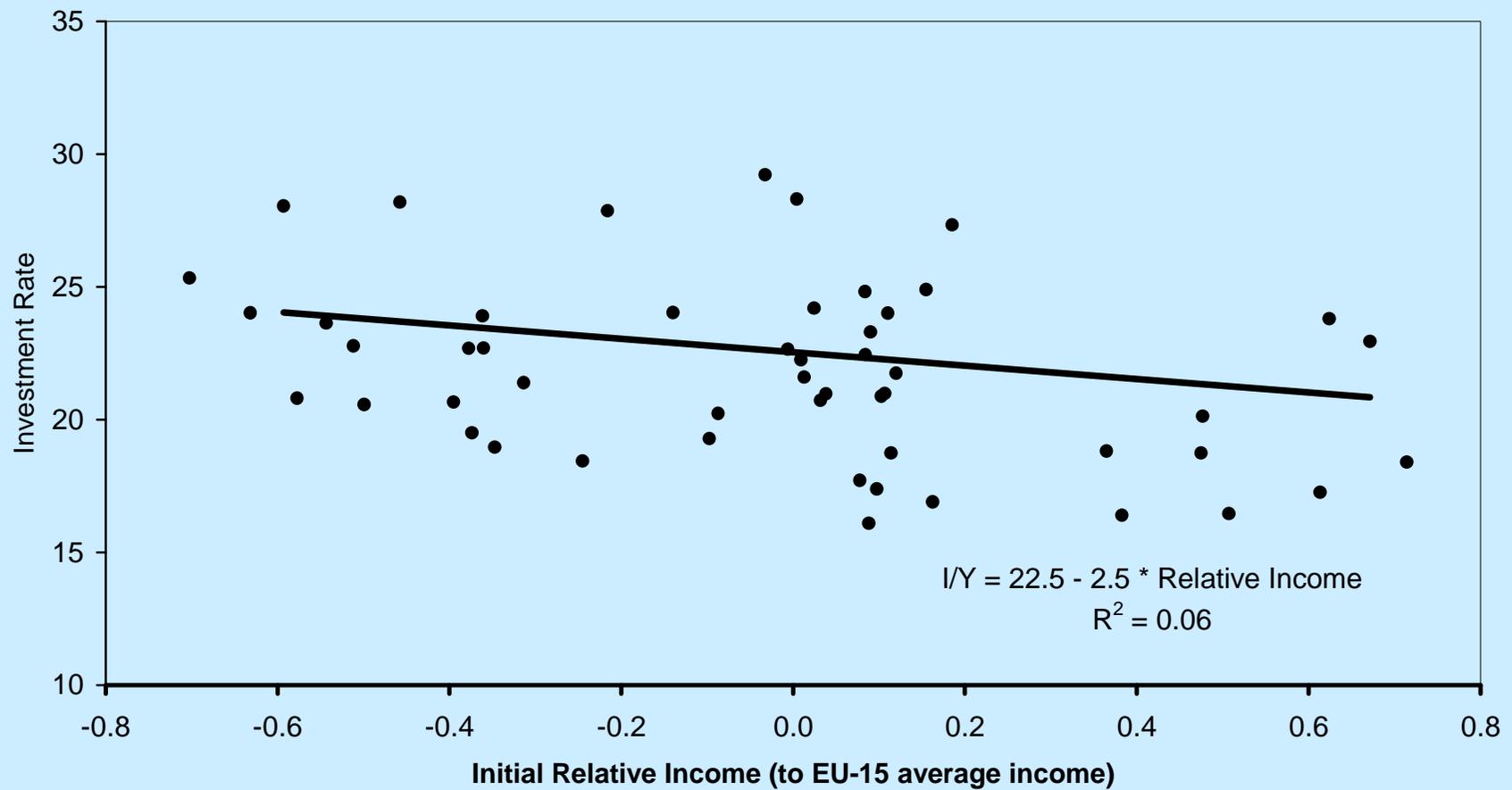
Sources: Eurostat and author's calculations.

Figure 5. EU-15: Relative Income and Labor Efficiency Growth, 1960-2000



Source: Eurostat and author's calculations.

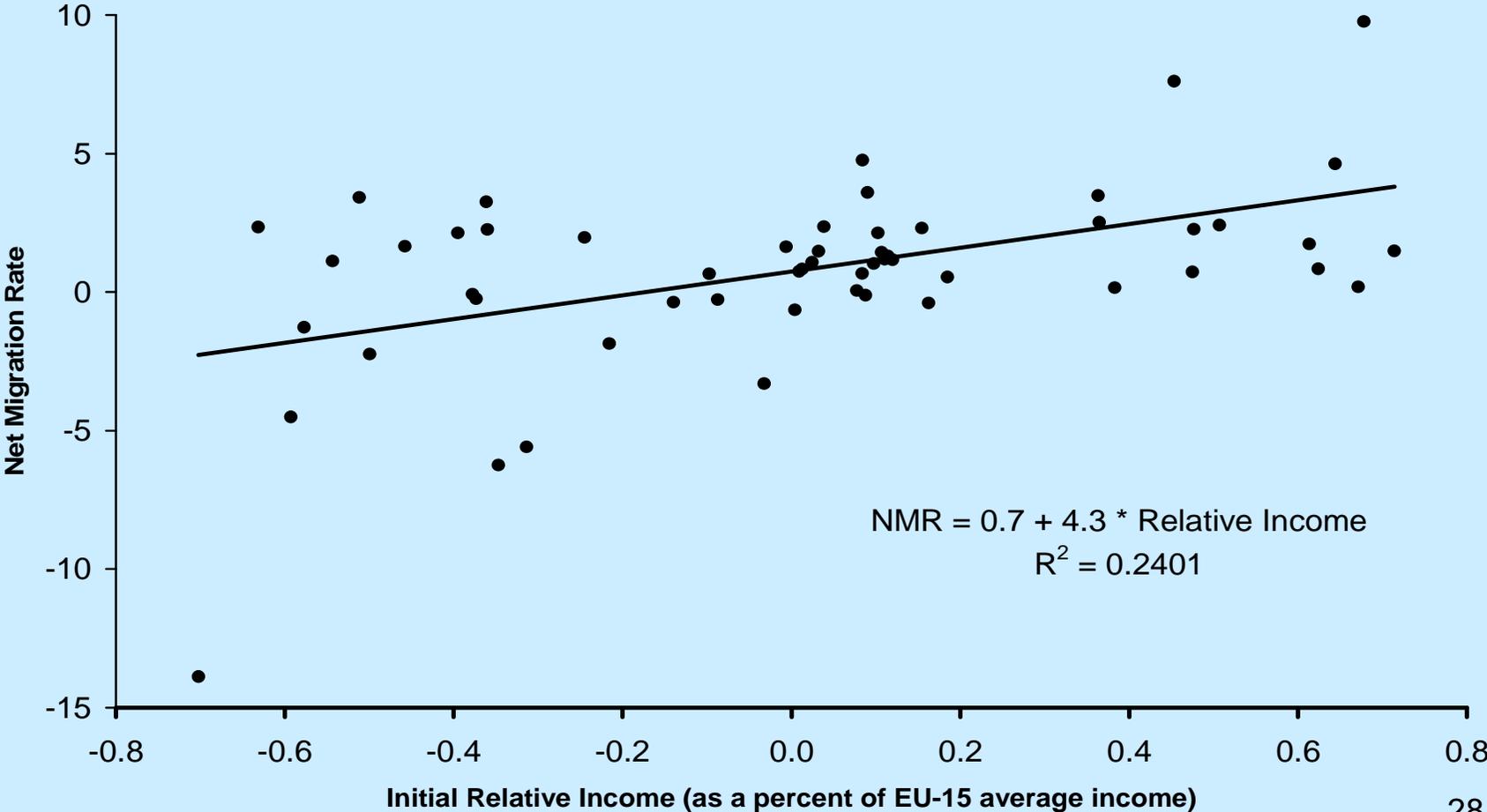
Figure 4. Selected European Countries: Relative Income and Gross Investment Rates, 1960-2000



Source: Eurostat and author's calculations.

Immigration responds to income differentials

Figure 5. Selected European Countries: Migration and Relative Income, 1960-2000



And, has some predictive powers for NMS

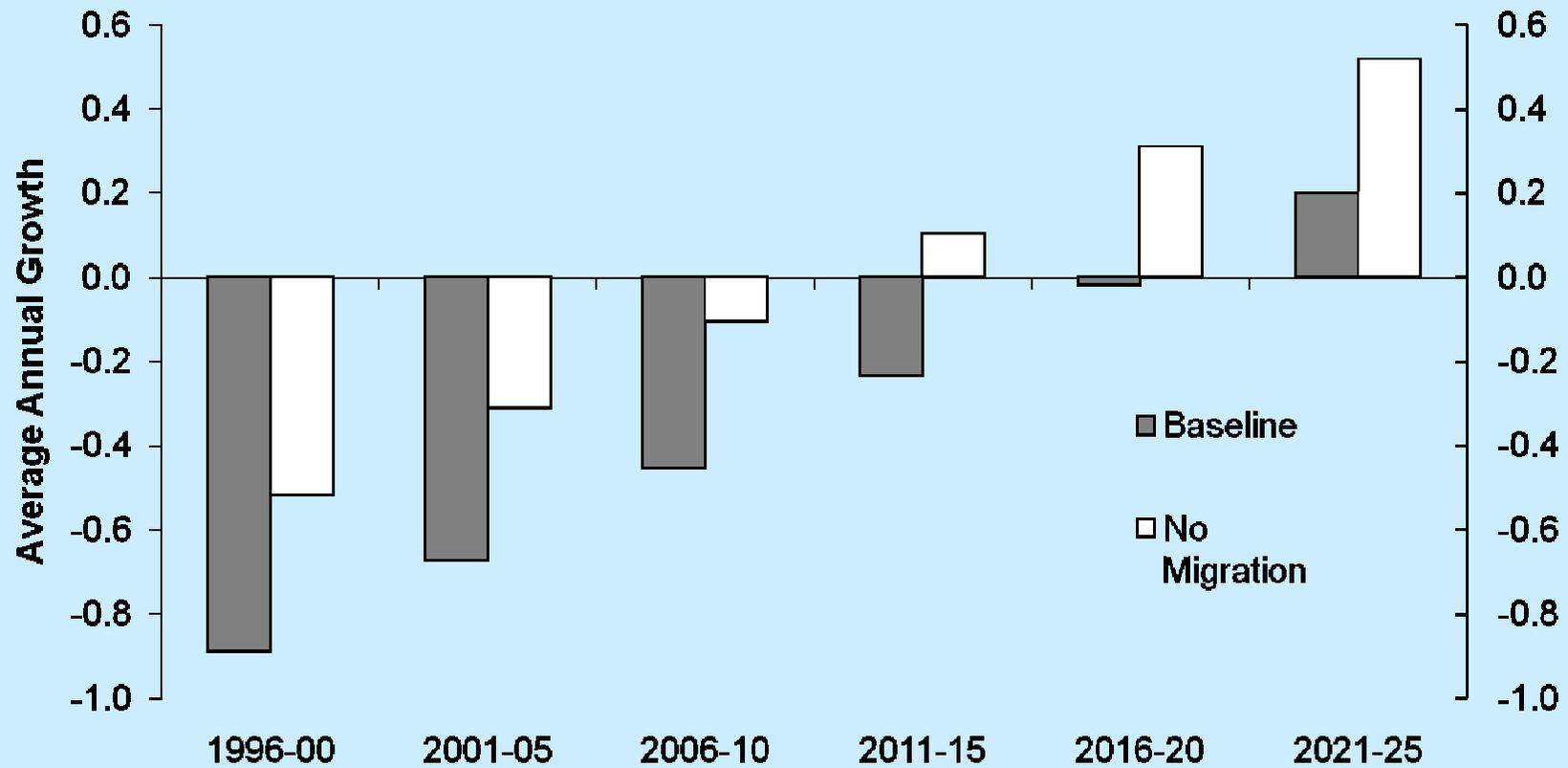
Table 2. New Member States: Relative Income and Net Migration Rates
(annual average)

	Average Income, 1995 (relative to EU-15)	Net Migration Rate, 1995-2005	
		Actual	Predicted
Latvia	-0.71	-2.2	-2.3
Lithuania	-0.65	-4.1	-2.0
Estonia	-0.65	-2.7	-2.0
Poland	-0.58	-1.3	-1.8
Slovak Republic	-0.52	-0.1	-1.5
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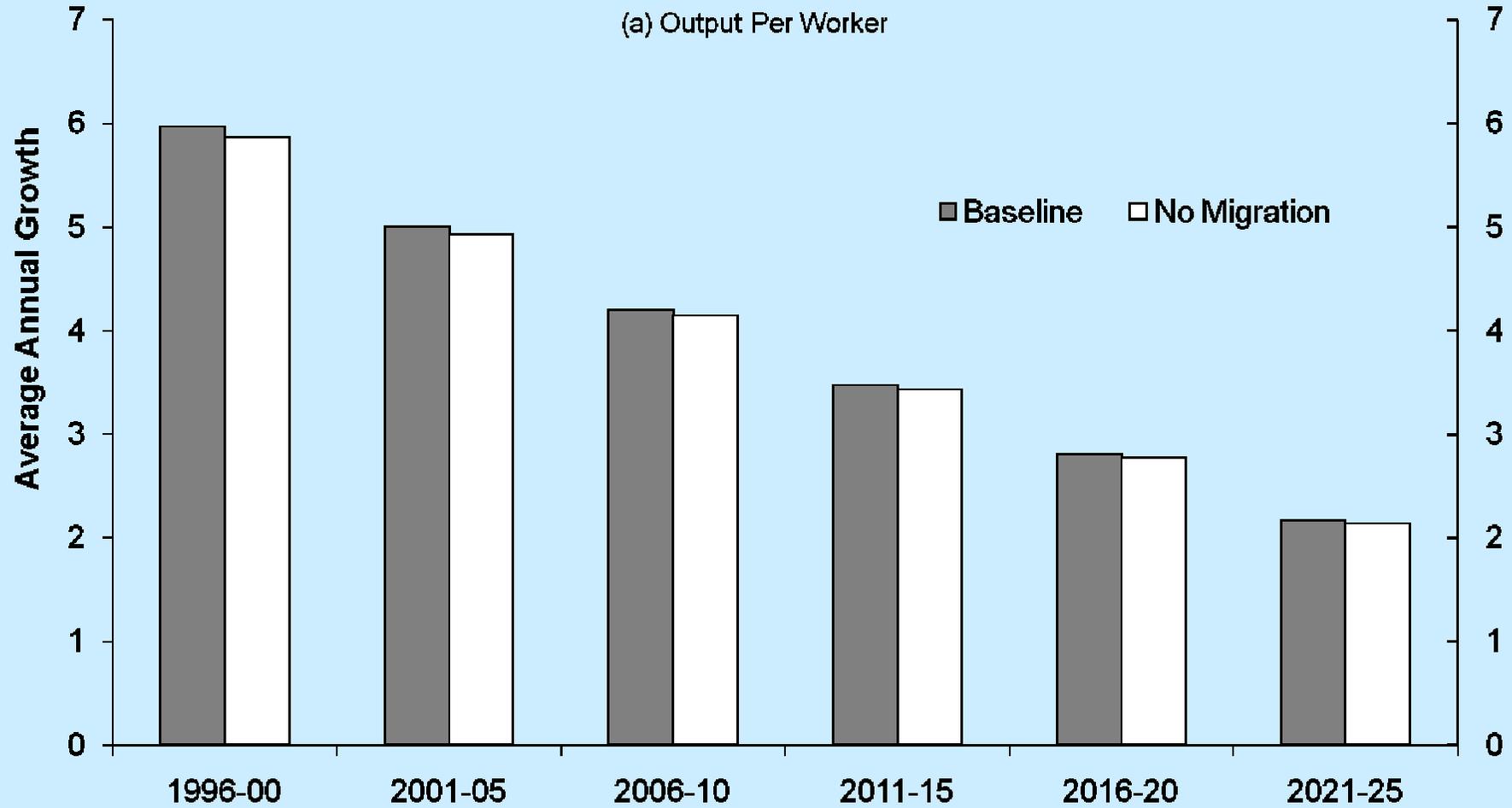
Sources: Eurostat and staff calculations

“No Migration” Scenario

(c) Labor Force



“No Migration” Scenario



V. Conclusions

Good News?

- There is no evidence of “bad” convergence or divergence – K/L ratios are increasing
- Labor outflows are significant, but are not unusual (age of mass migration and German reunification)
- While role of labor seems to be small relative to that of capital, social implications should not be ignored.

Lots of Caveats

- The model is very rudimentary
 - No feedback effects for accumulated foreign debt
 - Migrants do not take physical capital (including human capital)
- NMS are assumed to converge to EU-15
 - There is significant diversity among EU-15
 - Some NMS have been slow to shift from low to higher valued added production

- The speed of convergence is benchmarked against EU-15 behavior in the 1960s
 - Europe is much more integrated now, which could argue for faster adjustment
 - On the other hand, it seems hard to argue that some NMS were not growing faster than a “reasonable” convergence path
- The model is geared toward an analysis of the medium to long term.
 - There are no frictions associated with capital or labor flows
 - Capital is not sector-specific and is easily redistributed among workers