

Factors relating to the divergence in success of economic liberalisation of formerly communist Eastern European countries (1990-2015)

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Abstract

Liberalisation has been a key word for economic improvement since the 1970s, however it is not the only time liberalisation has taken place. Additionally, it has not always proven effective at solving a nation's economic ills. To find out what factors determine the success of economic liberalization, this research performs a series of regressions on several factors, across multiple countries in Eastern Europe. It determines success by looking at GDP (per capita, PPP), unemployment, net migration, and the suicide rate. Three hypotheses are used to guide research, based on explanations most commonly used in the debate surrounding the explanation of the divergent results of liberalisation in Eastern Europe. These hypotheses revolve around preconditions, policy, or international factors being the primary explanatory factors. Statistics from the World Bank and IMF are used as primary sources for data, with the great volume of previous studies of smaller scale or breadth providing secondary sources and historical context. The historical analysis of the data and context provides explanations for each of the dependent variables by comparing countries that performed well with those that did not in relation to the dependent variable in question. The study concludes that for GDP per capita PPP policy, factors influencing policy, and EU membership carry the most explanatory weight. For divergence in the unemployment rate policy is again the primary explanator, influencing the unemployment rate's reaction to the general growth of the economy, though preconditions factor into how much the rate could grow or be reduced. Divergence in the suicide rate is linked to social shocks, which are in part linked to preconditions and policy, but also general economic shocks. More research must be done on the influence of social factors on the suicide rate however. More research also is required on social, and perhaps legal factors regarding the divergence of net migration, as this study does not manage to reach substantial conclusions from investigating it.

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Introduction

Starting in the 1970s, liberalisation has been a key word for solving economic problems in the Western world. Privatisation of nationalised companies, removal of protection against external competition, deconstruction and prohibition of cartels, and inhibition of the power of labour unions to free up the labour market, all these measures and more are taken ostensibly to improve the economy, maintain economic growth, and increase the welfare of the nation partaking in this liberalisation. However, are these improvements, if they are indeed gained, really the direct, and only possible consequence of economic liberalisation?

Many countries outside of the West have liberalised their economies, with varying results, both economically and socially, making the conclusion that liberalisation is not a panacea for a nation's ills easily drawn. While countries such as the Asian tigers¹ and Poland appear to have done well under liberalisation, others such as Argentina have blamed their woes on attempts to liberalise the economy. Closer to home, the financial crisis of 2008 was caused in part by the liberalisation of the financial sector allowing banks to make irresponsibly risky investments for the sake of profit.

Liberalisation, it would appear, is not the economic panacea it is sometimes portrayed as. The question then rises what variables determine these differences in outcome, caused by the implementation of similar policies?

One often studied case relating to this question is that of the post-communist countries in Central and Eastern Europe. This case is of particular interest because it involved a large number of states liberalising at the same time, in a geographically small area (when discounting Russia's massive size), with states coming from a very similar institutional background, having been arranged under the communist regime. On top of this the results of the liberalisation vary significantly, with countries like the Ukraine stagnating, and countries like Poland experiencing rapid growth. This makes the case highly suitable for comparative research, as many potentially interfering variables are highly similar for the countries in question.

As will be explicated in the historiography, there are four main explanatory categories within current writings on the subject of the economic liberalisation of Eastern Europe. Three of these will form the basis of hypotheses that will serve as a guide for the variables taken into account in this study, as the fourth (the social hypothesis) has too little data available to work with. These hypotheses are the preconditions hypothesis, the policy hypothesis, and the international hypothesis. Each of these hypotheses simply states that the (primary) explanation for the differences in economic success is down to differences in either preconditions, policies implemented, or international factors. Additionally, successful economic liberalisation is measured not only in terms of effect on (a derivative of) GDP, but also the unemployment rate, the suicide rate, and net migration.

The aim of the study is to fill in gaps in current research by adding a study that both looks at multiple hypotheses across many of the countries of Eastern Europe, and measures success in more ways to account for negative effects outside of the economy liberalisation may have. The section on historiography will go into greater detail on why this is relevant. Further, the focus is not on explaining the end results per country, but rather to ascertain which variables explain the differences. The section

¹ Hong Kong, Singapore, South Korea and Taiwan

on methodology will go into greater detail how this will be done, and why the variables success is measured by were chosen.

As the liberalisation of Eastern Europe started after the fall of communism, the time frame for this research is from 1990 to 2015 with the exact start of liberalisation varying by country. The question this research will try to answer is as follows: Which factors explain the divergence of the success of economic liberalisation in the countries of Eastern Europe, between 1990 and 2015? To answer this question, the following sub questions are posed: What explains the divergence of GDP per capita PPP? What explains the divergence of the unemployment rate? What explains the divergence of the suicide rate? And finally, what explains the divergence of net migration?

Historiography

Much has been written about the effect of liberalisation in Eastern Europe, as well as what factors explain the differences in success. Four main explanatory categories dominate the debate, namely institutional explanations, explanations based on international factors, explanations based on preconditions, and explanations based on social factors. Many of these factors overlap, in that arguments for institutional factors may point to social factors as a mechanism by which the outcome is affected, even if the root cause is laid with the institutions. Thus, it is important to keep in mind that these categories are not strictly delineated, but merely used here to give structure to the debate.

In the rest of the paper, these explanatory categories are what the hypotheses, used to give structure to the research, are based upon. The institutional explanations form the basis for the policy hypothesis, the international explanations form the basis for the international hypothesis, and the preconditions explanations form the basis for the preconditions hypothesis. The social explanations are not used as the basis for a hypothesis, as explained earlier, due to the difficulty in finding relevant and measurable data regarding the hypothesis.

Institutional Explanations

One common, and widely supported explanation running throughout the debate on the factors determining the success of liberalisation in Eastern Europe is that of effective institutions. What policies are made, and how they are implemented. The support for this explanation is displayed well in a Dutch newspaper article. Eijffinger states, loosely translated, that the success of countries such as Poland, Hungary, and Slovakia on the one hand, and the failure of countries such as Russia and the Ukraine on the other hand, is naturally to be credited to the institutional reforms and macro-economic stabilisation policy enacted by the former countries.²

The level to which institutions are considered important, and in what way, varies however. For example, the liberalization of the financial sector is considered to be a significant cause of success by Andries and Capraru. They posit that effective government in terms of rule of law, and regulatory quality are important indicators for success, in a study comparing seventeen countries from Central and Eastern Europe. Success

² Eijffinger, S. C. W. 'Het Poolse succesverhaal', *Brabants Dagblad* 25 feb 2005, 15-15.

here is measured in growth of GDP, extending their conclusions to make these factors significant for the economy as a whole.³

Svejnar extends the necessity of a functioning legal framework to all companies, and adds on the need for corporate government of firms. He argues that these are part of a more extensive program of liberalisation implemented by countries such as Poland, Hungary, and Slovenia which lead to better economic performance (again in terms of economic growth).⁴

The speed at which liberalisation took place is a contested factor. Sachs argued in 1990 that “The need to accelerate privatization is the paramount economic policy issue facing Eastern Europe. If there is no breakthrough in the privatization of large enterprises in the near future, the entire process could be stalled for years to come. Privatisation is urgent and politically vulnerable.”⁵ In other words, policies that implement high speed liberalisation are necessary for economic success in Eastern Europe.

However, Bobak and Marmot take the opposite view, namely that faster liberalisation may harm the prospects of a successful transition to capitalism for the countries of Eastern Europe. Fast liberalisation is associated with a greater amount of social problems, such as unemployment, which then lead to increased mortality (mostly for young men). Suicides were also linked to this process. Such consequences then would put a serious damper on the support for further liberalisation, thus harming the prospects for a successful economy in the end.⁶

Finally, Popov states that, when controlling for other factors, the significance of the speed of the liberalisation drops off the radar entirely. In other words, that the speed of the transition to liberalism doesn't matter one way or the other.⁷

The effect and impact of institutions remains a source of debate.

International Explanations

The second most common set of explanations involves international relations, both political and economic with Russia and Europe, as factors that determine the success of liberalisation. The general consensus appears to be that relations with Europe are better than relations with Russia. However, there is still significant variation in how and why these relations are considered important.

International investment, according to Nölke and Vliegenthart, is the primary indicator for economic success in Eastern Europe. They argue an entirely separate type of capitalism has formed as a result, which they call ‘Dependent Market Economies’. These economies can achieve quick growth, but are dependent

³ Alin Marius Andries; Bogdan Capraru, ‘Impact of Financial Liberalization on Banking Sectors Performance from Central and Eastern European Countries’, *PLoS ONE* 8(2013), 3, <http://europepmc.org/articles/PMC3605381/> (29/05/2017).

⁴ Jan Svejnar, ‘Transition Economies: Performance and Challenges’, *Journal of Economic Perspectives* 16 (2002), 1, 3-28, 25.

⁵ J Sachs, ‘What is to be done?’, *Economist (London)* Jan 13, 1990 19–24.

⁶ Martin Bobak; Michael Marmot, ‘Societal transition and health’, *The Lancet* 373(2009), 9661, 360-362, 361-362

⁷ Vladimir Popov, ‘Shock Therapy Versus Gradualism: The End Of The Debate (Explaining The Magnitude Of Transformational Recession)’, *Comparative Economic Studies* 42 (2000), 1, 1-57, 1

on maintaining relatively low wages for high levels of education to continue to attract the interest of investors.⁸

Smith & Swain add that the reliance of the Eastern European countries closest to the EU on exports to the EU has forced them to develop more productive industries, aimed at assembly productions, compared to the countries closer to Russia. This is nuanced however, by Eastern Europe's reliance on Russia for their power needs.⁹ Additionally the countries further east, due to their closer relation with Russia, see their global opportunities diminished due to international politics.¹⁰

Finally, Svejnar posits that (prospective) membership to the EU pushed many of the Eastern European countries to economic success. Having initially stronger ties to the west, and being amongst the first to be prospects were countries such as Poland and Hungary. This made them more likely to both receive support for reaching economic goals, and have the prospect of the wealth brought by membership to the EU motivate both people and politicians to overcome the inconveniences and disagreements inherent with liberalisation.¹¹

There is a consensus that trade with Western Europe has been a (positive) factor in determining the success of economic liberalisation. However, whether this dependence on Western Europe is in itself not a form of unsuccessful liberalisation, or harmful to the economic prospects of the countries involved, is a question that remains largely untouched.

Preconditions Explanations

The explanatory category of preconditions is less prevalent than the previous two, perhaps in part due to a lack of information on many variables during the Communist era. It maintains variables such as they existed prior to the liberalisation as the cause of the success of liberalisation.

Popov, while acknowledging the role of institutions, claims that the majority of differences between post-communist countries' economic trajectories can be explained by the conditions existing in those countries directly before the start of liberalisation. These conditions primarily entail the countries' development of industry and trade connections, though institutional factors such as rule of law are also considered important to a lesser degree.¹²

Along the same lines is the argument that countries that had been under communist rule longest had the hardest time adapting to liberalisation, especially the more far-reaching reforms. This is in part also a

⁸ Andreas Nölke; Arjan Vliegthart, 'Enlarging the Varieties of Capitalism: The Emergence of Dependent Market Economies in East Central Europe', *World Politics* 61 (2009), 4, 670-702, 670

⁹ Adrian Smith; Adam Swain, 'The Global Economic Crisis, Eastern Europe, and the Former Soviet Union: Models of Development and the Contradictions of Internationalization', *Eurasian Geography and Economics* 51 (2010), 1, 1-34, 20.

¹⁰ Adrian Smith; Adam Swain, 'The Global Economic Crisis', 29

¹¹ Jan Svejnar, 'Transition Economies', 23-24.

¹² Vladimir Popov, 'Shock Therapy Versus Gradualism', 1.

cultural and institutional argument, where it was harder for the longer established institutions and cultures to change. This difficulty then explains the (lack of) economic success.¹³

Borgerson and King point out the existence of preconditions in different Eastern European countries, in particular the structure, flexibility, and sectoral productivity imbalances, that require a different approach to attain economic growth. However, they also remark that economic growth does not necessarily coincide with less unemployment.¹⁴ By extension, this also means it does not coincide with higher real wages, even if the GDP grows, which doesn't show up elsewhere in the debate. Relating this back to Andreas and Arjan and the concept of the 'Dependent Market Economy', where low wages are necessary for maintaining growth, raises questions about the validity of measuring economic success primarily by the growth in GDP.¹⁵

Social Explanations

The social explanatory category entails factors such as culture, civil society, social capital, and other such societal factors being used to explain the differences in the outcome of liberalisation. These concepts, though intertwined with the political, are not concerned with the formal institutions and policies, so much as informal connections, and the position of politicians within society.

Pickles takes dense networks of informal connections between business and politics as an indication of corruption, and thus a factor determining unsuccessful liberalisation.¹⁶ This position is however not uncontroversial. Roger posits that close connections between business and politics are actually an indicator for successful liberalisation, so long as they are accompanied by high levels of political competition that constrain politicians. This leads to strong institutions of politics themselves, as can be seen in Poland. By contrast Bulgaria, which has weak networks and strong political competition, and Romania which has weak networks and weak political competition both have emerged with weak political institutions.¹⁷ These studies take additional factors and different cases into account, but neither covers Eastern Europe as a whole, thus possibly explaining the different outcome.

Winiacki, points to cultural differences as a determining factor for economic success. Countries with a predominantly western Christian church (catholic or protestant) have core values that allow for a better reaction to liberalisation versus those with a predominantly eastern Christian church (orthodox).¹⁸ It is easy to suggest however that, as pointed to in the international theme, these cultural differences simply

¹³ Jan Svejnar, 'Transition Economies', 23-24.

¹⁴ Trond-Arne Borgersen; Roswitha M. King, 'Industrial structure and jobless growth in transition economies', *Post-Communist Economies* 28 (2016), 4, 520-536, 520.

¹⁵ Andreas Nölke; Arjan Vliegthart, 'Enlarging the Varieties of Capitalism', 670

¹⁶ John Pickles, *Theorising Transition: the political economy of post-communist transformations*, (London, 1998) (2005), 1.

¹⁷ Roger Schoenman, *Networks and institutions in Europe's emerging markets*, Cambridge University Press (2014), 1.

¹⁸ Jan Winiacki, 'Determinants of catching up or falling behind: interaction of formal and informal institutions', *Post Communist Economies* 16 (2004), 2, 137-152, 137.

made (trade) relations with Western Europe respectively Russia easier to facilitate, and that the cultural differences themselves are only indirectly related to economic success.

Finally, Bobak and Marmot, while they primarily warn against the dangers and social consequences of fast transitions, make note of a social factor as well. Countries with high levels of associational life, social capital, or in short, an active civil society, are capable of much better handling the negative social consequences of liberalisation, thereby much better and more successfully facilitating it. The Czech Republic is set off here against CIS countries, comparing no noticeable increase in mortality and strong social capital with a large increase in mortality and low social capital.¹⁹

Notable areas for additional research:

Some of the obvious gaps in literature are the relative lack of studies that include most of the Eastern European countries, let alone for most or all of the various explanatory factors currently in the debate. Additionally, only a few studies look at economic success through the lens of something other than GDP growth. This research will focus on filling those gaps, by looking at many different variables related to the hypotheses extrapolated from the debate, across many countries, and correlating them not only with GDP (in the form of purchasing power), but also net migration, unemployment, and the suicide rate. Social factors are an area that remains woefully under-researched, particularly in quantitative terms, but remains outside the scope of this paper. Why the (dependent) variables were chosen, and how they will be researched is explained next.

Methodology

The first element necessary to test what variables explain the difference in results following the economic liberalisation of former communist countries in 1990 are the results themselves. These dependent variables are chosen because they are thought to represent a measure of the wellbeing of the people living in the country. The first of these variables is the GDP per capita, PPP (meaning adjusted for the local costs of products, and resultant real purchasing power). GDP is one of the most commonly used measures of economic success in studies of this topic. The growth of GDP, per capita and adjusted for local circumstances, since the beginning of the liberalisation, should present a fair indicator of how well-off people are relative to the beginning of the liberalisation.

The second dependent variable is unemployment, as a percentage of the total labour force, as estimated by the ILO model. Unemployment is important because it could indicate a significant portion of the population that is not benefitting from an otherwise relatively high GDP per capita. In other words, GDP per capita without unemployment allows for a highly unequal distribution of the wealth to go unnoticed. A small wealthy elite may in this case be compensating for a poor population. The ILO modelled estimate provides a source of unemployment estimation free from (international) political influence, compared to the national government's estimate. The growth of unemployment since the start of liberalisation can be considered a fair indicator for growing inequality, depending on the ratio between it and the growth of GDP per capita.

The third dependent variable is net migration to or from the country. This variable serves a double function. Firstly, to indicate the overall attractiveness of the country as a place to live, with a positive net

¹⁹ Martin Bobak; Michael Marmot, 'Societal transition and health', 361-362.

migration indicating a higher attractiveness, and a negative migration indicating a lower attractiveness. Secondly it offers an additional control variable on both unemployment and GDP per capita. If the unemployment is growing at a slower rate than people are migrating towards the country, then one could still infer that on the whole unemployment is decreasing, it is simply being outstripped by (unqualified) people wishing to come and live and work in the country. Similarly, if unemployment is shrinking, but at a slower rate than people are migrating away from the country, then the unemployment on the whole could still be increasing, with people out of work simply seeking their fortune abroad as a result of the unemployment. Low skilled workers migrating towards the country also negatively affects the GDP per capita, and vice versa.

Finally, the fourth dependent variable is the suicide rate. This variable again serves multiple purposes. Firstly to, again, indicate the overall happiness of people living in the country, especially those least fortunate, and secondly to control for having a significant portion of people who would seek their fortunes elsewhere, but simply can't afford to. The relation between this and the other dependent variables will again help interpret the data more accurately.

As for the independent variables, there are three broad hypotheses which form the basis for which are chosen to be tested. The first hypothesis is the preconditions hypothesis. This hypothesis can be summarised as that the bulk of differences in outcome between the countries can be explained by the differences in conditions at the start of the liberalisation. The following variables as they were in 1990, are tested against the dependent variables to find out which are correlated.

GDP per Capita, PPP (does having a higher GDP per capita to start off with predict better results?)

GDP (does having a larger economy on the whole predict better results?)

Total Natural Resources Rents (does having a high amount of natural resources predict better results?)

Arable land (hectares per person) (does having a large amount of arable land relative to the population predict better results?)

Urban Population as % of total population (does being more urbanised predict better results?)

Trade (% of GDP) (does having a more trade-focused economy predict better results?)

Industry (% of GDP) (does having an industry focused economy predict better results?)

Employment in agriculture (% of total employment)

Employment in industry (% of total employment)

Employment in services (% of total employment)

(does having a high amount of people employed in any particular sector predict better results?)

Part of the Warsaw pact? (years total)

Part of the Soviet Union? (years total)

(does having spent a longer amount of time in either of these political entities predict better results?)

The second hypothesis is the policy hypothesis. This hypothesis can be summarised as that the bulk of differences in outcome can be traced back to differences in (economic) policy implemented by government. The following variables, as they have changed over time, will be tested against the dependent variables as representative of this hypothesis.

Taxes on income, profits, and capital gain (% of revenue)

Taxes on international trade (% of revenue)

Total tax rate (% of commercial profits)

Profit tax (% of commercial profits)

Tariff rate (applied weighted mean, all products)

(does implementing particular rates of taxation predict better results?)

Expenditure on education (% of total government expenditure)

Health expenditure, public (% of GDP)

(does spending more on healthcare or education predict better results?)

Real interest rate (%)

(does setting a particular real interest rate predict better results?)

The third hypothesis is the International hypothesis. This hypothesis can be summarised as that the bulk of differences in outcome between countries can be attributed to their economic, political or cultural ties with other countries. The following variables will be tested against the dependent variables as representative of this hypothesis.

Foreign direct investment, net inflows (% of GDP)

(does attracting a high amount of foreign direct investment predict better results?)

Trade (% of GDP)

(does having a high amount of Trade predict better results?)

Exports of goods and services (% of GDP)

External balance on goods and services (% of GDP)

(does focusing on exports predict better results, and does having more exports than imports predict better results?)

Membership of the EU (In years since joining)

(does joining the EU predict better results?)

For the sake of limiting the scope of the study, and due to a lack of consistently available data relating to it across all countries, the social hypothesis will not be included in this study.

The following countries will be part of the study:

- Ukraine
- Belarus
- Moldova
- Latvia
- Lithuania
- Estonia
- Bulgaria
- Hungary
- Poland
- Romania
- The Czech Republic
- Slovakia
- Albania

The following countries will be excluded from the study:

- Czechoslovakia (included as The Czech Republic and Slovakia): Exclusion was considered due to split into The Czech Republic and Slovakia, however due to the peaceful and swift nature of the split, and it's relatively low immediately apparent economic impact, the descendant countries were kept in. Data for Czechoslovakia itself was no longer available however.
- East Germany: Excluded from data because of its fusion with West Germany, aside from the economic impact of this merger, data for East Germany was also no longer available because it did not exist as such.
- Yugoslavia: Excluded, along with its descendant countries due to the violent break up and enduring conflict in the middle of the dataset. Data for Yugoslavia itself is also no longer available as the country no longer exists.

The main tool for producing results is a number of one to one regressions using Stata to establish correlation between the multiple variables and the four indicators for economic success over time: GDP per capita PPP, the unemployment rate, the suicide rate, and net migration. These results will be used to supplement and underpin a historical analysis of the differences between various countries which display a particularly good, or poor result in one measure of success or another. The results are available in the appendices, mentioned in the section Results below are only those variables which achieved statistical significance, or were considered of interest for other reasons, alongside. Results are considered statistically significant using a confidence level of 95%, thus requiring a P-value of less than 0.05, and a $|t|$ (or $|z|$ in the case of panel data regressions) bigger than 1.96 to be considered statistically significant.

Results

All regression results relevant to the hypotheses are shown in appendices one through nine. Source data is not included in the paper for the sake of brevity. Sources for the data are the world bank²⁰, the world health organisation²¹, and the “our world in data” website²² which itself used a compilation of data from the world health organisation. Some additional calculations will be mentioned throughout the analysis, which were done on the fly as results raised questions or possibilities. As will be mentioned again in the analysis, for the sake of brevity the results of these calculations will not be shown in detail, though the data used to perform them can be found in the same sources as mentioned above.

Appendices ten through thirteen show the development of the dependent variables over time in the form of line graphs for each country, as well as in a larger, combined graph with more detailed numbers. Correlations, patterns that immediately stand out from the graphs, and rankings for countries based on their success in the dependent variables will be mentioned below as part of the results. The interpretation and analysis of these results will be part of the next chapter.

Some correlations in the appendices show as “no data” this simply means there were not enough overlapping data points to perform a regression. This can happen for example when the dependent variable only deviates from a norm for a few countries, and those happen not to have data points for the time frame measured.

Correlations:

Out of all the variables tested, the following were found to have be correlated with one of the variables for successful outcome of economic liberalisation in the formerly communist eastern European countries.

²⁰ The World Bank, *World Development Indicators* (03/01/2017), <http://data.worldbank.org/data-catalog/world-development-indicators> (21/01/2017).

²¹ World Health Organisation, ‘Suicide rates, Crude data by Country’ (04/04/2017), (<http://apps.who.int/gho/data/node.main.MHSUICIDE>).

²² Lee, Lindsay; Roser, Max; Ortiz-Ospina, Esteban, ‘Suicide’, *OurWorldInData.org*(2016), <https://ourworldindata.org/suicide/> (29/05/2017).

GDP per capita (ppp):

Industry (% of GDP) in 1990 – Positive
 Net Migration in 1992 – Negative
 Taxes on income, profits, and capital gains – Negative
 Taxes on international trade – Negative
 Total tax rate – Negative
 Tarrif rate – Negative
 Expenditure on Education – Negative
 Health Expenditure, Public – Positive
 Trade (% of GDP) – Positive
 Exports of goods and services (% of GDP) – Positive
 External balance on goods and services (% of GDP) – Positive
 Membership of the EU (in years) – Positive

Unemployment:

Arable Land (hectares per person) in 1990 - Negative
 Total Natural Resource rents (% GDP) in 1990 - Positive
 GDP per capita PPP in 1990 – Positive
 Unemployment total (1991) – Negative
 Unemployment (total % of labour force) (1991) – Positive
 Taxes on income, profits, and capital gain – Negative
 Taxes on international trade - Positive
 Health Expenditure, Public – Negative
 Foreign direct investment, net inflows (% of GDP) - Negative
 Trade (% of GDP) – Negative
 External balance on goods and services (% of GDP) - Positive

Net Migration:

Net migration in 1992 – Positive
 Warsaw pact membership (in years) – Positive
 Urban population in 1990 - Positive
 Arable land (hectares per person) in 1990 – Positive
 Net migration in 1992 – Positive
 Profit tax – Positive
 Health expenditure, Public -Positive
 External balance on goods and services - Positive

Suicide rate:

Soviet Union membership in years – Positive
 Trade (% of GDP) in 1990 – Positive
 Urban Population (% of population) in 1990 - Positive
 Suicide rate in 1990 – Positive
 Employment in agriculture(%workforce) in 1990 – Positive
 Industry (% of GDP) in 1990 – Positive
 Arable land (hectares per person) in 1990– Negative

Taxes on International Trade – Positive
Tariff rate – Positive
Expenditure on Education – Positive
Health expenditure, public – Positive
Foreign direct investment – Negative

Patterns:

GDP per capita PPP (Current US\$) displays a positive trend for all countries involved. Some countries have steeper increases than others, but all have a consistent upward trend. Most countries show a dip around 2008, as the economic crisis hit, but also appear to recover from it within a year or two. Estonia Lithuania and Latvia appear to have been hit exceptionally hard by the crisis, whereas Poland barely slowed its growth. Ukraine does not recover well after the crisis, most likely related to the ongoing conflict in eastern Ukraine, the declaration of independence of Crimea, and its subsequent annexation by Russia.

Unemployment displays volatility, but remains roughly the same on average. Unemployment in Romania, Belarus, and Hungary appears less volatile than in the other countries. Unemployment further shows a dip, followed by a spike around 2007-2008 in several countries.

Net migration appears stable in most countries across the period measured.

Suicide rate appears stable in most countries across the period measured. Estonia, Lithuania, and Latvia see a sudden uptick between 1992 and 1994. Poland sees an uptick around the 2008 crisis.

Dependent variable results per country

*closest data points used where not available

Ranking (relative to the other studied countries) in brackets[].

Country	Albania	Belarus	Bulgaria	The Czech Republic	Estonia	Hungary
Net migration change (% of population in 2015 minus % in 1990)*	2.097% [1]	0.378% [5]	0.698% [3]	-0.001% [11]	1.280% [2]	-0.126% [12]
Suicide rate Growth (2015% of 1990)*	72% [2]	118% [8]	130% [10]	82% [3]	128% [9]	65% [1]
Unemployment growth (2015% of 1990)*	136% [11]	92% [8]	63% [2]	270% [12]	513% [13]	67% [3]
GDP per capita PPP growth (2015% of 1990)*	422% [5]	340% [9]	352% [8]	268% [11]	462% [2]	319% [10]

Latvia	Lithuania	Moldova	Poland	Romania	Slovakia	Ukraine
0.315% [6]	-0.593% [13]	0.659% [4]	0.087% [7]	0.020% [10]	0.061% [8]	0.057% [9]
93% [5]	134% [11]	112% [7]	176% [13]	139% [12]	89% [4]	108% [6]
75% [5]	72% [4]	45% [1]	81% [6]	90% [7]	123% [10]	113% [9]
452% [3]	486% [1]	266% [12]	435% [4]	421% [6]	420% [7]	117% [13]

In the following chapter these correlations, patterns, and rankings will be analysed to suggest possible explanations for the divergence in each of the variables.

Analysis

As one can see in the results, there are significant differences in the levels of success between countries. What explains these differences? To find out, several stand-out positive and negative results in each category of success will be compared to one another. Where no citation is given for uncommon information, the information is taken directly from (a derivative of) the data in the world health indicators,

or in the case of the suicide rate, the world health organisation study and our world in data website.^{23,24,25} This in order to prevent every other sentence being followed with the same citation. The most important data and calculations can also be viewed in the appendices (see index).

Firstly, in terms of GDP per capita PPP, Poland and the Baltic states performed exceptionally well, whereas Moldova, and in particular Ukraine, have performed exceptionally poorly. What key differences lead to this divergence?

GDP per capita PPP divergence

From the very start, Poland had a different start from the other countries. All countries' economies were hit hard by the first few years of liberalisation, suffering a big recession, massive inflation, and much loss of production.²⁶ There were however significant differences in how much production was lost, and how long it took to recover from the shock. Poland suffered only a third of the contraction that the Baltic states, Moldova, and the Ukraine endured. The Baltic states had a rough start to liberalisation besides the relatively strong economic shock. Originally a part of the Soviet Union, Estonia, Latvia, and Lithuania did not achieve official independence until August of 1991.²⁷ Even then, Russian troops remained within these countries borders until 1993, or in the case of Estonia, 1994.²⁸ Calling just how free they were to make their own policy into question. Despite this, they managed to apply some of the most strongly liberalising policies.

Poland, alongside the Baltic states, is said to have applied 'shock therapy' in its introduction of liberalisation. They started their economic recovery more strongly, and earlier than those which adopted a more gradual approach to liberalisation.²⁹ Related to these policies, the data shows that keeping taxes low on international trade, the total tax rate, and the tariff rate, is good for purchasing power growth in general. With the notable exception of the total tax rate in Estonia, these taxes and trade tariffs were well below average in Poland and the Baltic states.

From this strong start, Poland, alongside the Baltic states, experienced continuous growth of the GDP per capita PPP. Poland joined NATO in 1999, and both Poland and the Baltic states ended up joining the EU in 2004 (the Baltic states joined NATO at this point too). It is clear from the data that membership of the EU

²³The World Bank, *World Development Indicators* (03/01/2017), <http://data.worldbank.org/data-catalog/world-development-indicators> (21/01/2017).

²⁴ World Health Organisation, 'Suicide rates, Crude data by Country' (04/04/2017), (<http://apps.who.int/gho/data/node.main.MHSUICIDE>) (21/6/2017).

²⁵ Lee, Lindsay; Roser, Max; Ortiz-Ospina, Esteban, 'Suicide', *OurWorldInData.org*(2016), <https://ourworldindata.org/suicide/> (29/05/2017).

²⁶ James Roaf et. al, '25 Years of Transition: Post-Communist Europe and the IMF, Regional Economic Issues Special Report', *International Monetary Fund* (2014), V, https://www.imf.org/external/pubs/ft/reo/2014/eur/eng/pdf/erei_sr_102414.pdf (21/1/2017).

²⁷ Serge Schemann, 'Soviet Turmoil; Soviets Recognize Baltic Independence, Ending 51-Year Occupation of 3 Nations', *The New York Times* (7/9/1991), <http://www.nytimes.com/1991/09/07/world/soviet-turmoil-soviets-recognize-baltic-independence-ending-51-year-occupation-3.html?pagewanted=all> (21/6/2017).

²⁸ 'Case Study: The Withdrawal of Russian Military Forces from the Baltic States', *National War College* (1996), 9-11, <http://www.dtic.mil/dtic/tr/fulltext/u2/a441390.pdf> (21/6/2017).

²⁹ James Roaf et. al, '25 years of Transition', 13-14.

is a prime factor when looking at the growth of purchasing power. This trend of fast growth continued for both Poland and the Baltic states up till the economic crisis, between 2007 and 2009.

Poland handled the crisis relatively well, though all countries with stronger ties to the west, and thus its financial advisors and banking systems, were hit harder than those that did not have such ties.³⁰ Whilst Poland experienced the crisis primarily as a reduction in growth, the Baltic states were hit exceptionally hard.³¹ Despite these setbacks both countries quickly resumed growth after the crisis, and the data shows that by 2011 the Baltic states had recovered their drop in GDP per capita PPP. The last few years of the data show a return to steady growth of the GDP per capita PPP, ending in 2015 with Poland and the Baltic states experiencing over 300% growth since the start of liberalisation 25 years earlier.

In summary, the Baltic states had a relatively rough start, and experienced the economic crisis in 2008 as exceptionally tough. Beyond this however, both Poland and the Baltic states had a relatively uneventful 25 year period of stability and economic growth after liberalisation. Free trade policies and West-oriented international politics, which resulted in the joining to the EU in 2004, accelerated growth. Other factors, such as public education and health expenditure, which the data shows are of influence on GDP per capita PPP when looking at the region as a whole, vary across Poland and the Baltic states. As such they are most likely of less importance than the aforementioned factors.

Contrasting Moldova and Ukraine with these countries, which are successful in terms of GDP per capita PPP growth, shows a world of difference. To start off with, the Ukraine and Moldova both experienced an economic shock at the start of liberalisation equivalent to that of the Baltic states. Also like the Baltic states, they had been a part of the Soviet Union, and took longer to officially declare independence than other formerly communist countries. Most of the similarities however, end there. Neither country enacted a 'shock therapy' as Poland and the Baltic states are said to have done. Both countries did not recover quickly, or strongly from the economic impact of the liberalisation. The data shows that the Ukraine, the worst off in terms of GDP per capita PPP, did not recover to its pre-1990 levels of purchasing power until 2006. Related to their economic policies, the data shows that they maintain relatively high levels of taxes on international trade, and tariffs that are about average for the region. Additionally, the Ukraine has maintained an exceptionally high total tax rate. Moldova maintained a low total tax rate, and lower tariff rate than the Ukraine.

At the end of 1991 both Ukraine and Moldova joined the Commonwealth of Independent States, tying their economies more closely to Russia. By 1993 in Moldova the communist party was unbanned, and by 1996 its former first secretary became the nation's second president. The communists continued to gain large shares of the vote in the years following, leading to struggles between pro-EU liberal parties, and pro-Russia socialist parties.³² Though meanwhile Ukraine's economy continued to stagnate, both countries remained stable aside from a few protests and organised strikes owing the lacking economy in

³⁰ James Roaf et. al, '25 years of Transition', V.

³¹ Paul Krugman, 'European Crass Warfare'. *The New York Times* (15/12/2008), <http://www.nytimes.com/2008/12/15/opinion/15krugman.html> (21/6/2017).

³² Horia C. Matei, *State lumii. Enciclopedie de istorie*, Bucharest (2006), 292-294.

Ukraine.³³ As the data shows, the following years would see a slow but steady return to growth for both countries, up to the mid to late 2000's.

By 2006 the data shows the Ukraine and Moldova were picking up pace, achieving growth of purchasing power around 10% a year, well above average for the region, and comparable to Poland at the time. The crisis of 2008, as mentioned, hit the countries tied to Russia rather than western powers less hard, taking Moldova only a year to recover from. The Ukraine was less fortunate however. Aside from the crisis, it had also had repeated disputes over gas, which it imported from Russia, in 2006 and 2009.³⁴ Despite this, by 2012 the Ukraine too had recovered from the crisis and maintained moderate, but steady growth till 2014.

In 2014 the Crimea conflict started between Russia and Ukraine, in which Crimea ended up declaring independence, and subsequently getting annexed by Russia.³⁵ Ukraine's economy went back into recession, and Moldova's economy, tied closely to Russia and the Ukraine's through the CIS, stagnated. Thus in 2015 the Ukraine ended with a mere 17% more GDP per capita PPP than in 1990, whereas Moldova ended with 166% growth, the second lowest of the countries studied.

In summary, Moldova and the Ukraine opted for a more gradual liberalisation, and closer ties to Russia. As their economies remained in recession longer, in part thanks to the less liberal policies, there was internal turmoil, both politically and as a result of the poor economy, which compounded the problem. Despite promising growth in the mid 2000s, the economic crisis, followed by international disputes put a stop to this growth for the Ukraine. The ensuing conflict with Russia further hampered the two countries, who were both economically tied to Russia. Other factors which were of influence on the GDP per capita PPP based on the data, such as public health expenditure and expenditure on education, again vary between the two countries, being both below and above average. They are thus presumed to have had a lesser impact than the abovementioned factors.

It would appear that, for GDP per capita PPP, there is evidence that policy is of more importance than the initial shock suffered by liberalisation. The Baltic states suffered similar levels of shock to the Ukraine and Moldova, but managed to achieve growth greater than Poland despite this. This policy was probably in part affected by the internal political and social conflicts in Moldova and Ukraine. Additionally, joining the EU gave the Baltic states and Poland a boost to growth that Moldova and the Ukraine's relationship with Russia could not equate to. This last part was exacerbated because of conflicts between the Ukraine and Russia, and the international response (economic sanctions) to those conflicts putting strain on economies tied to Russia (as is also visible in the data on Belarus).

³³ Anders Åslund, 'Eurasia Letter: Ukraine's Turnaround', *Foreign Policy* 100 (1995), 125-143, 130.

³⁴ 'Russia shuts off gas to Ukraine', *BBC News* (1/1/2009), <http://news.bbc.co.uk/2/hi/europe/7806870.stm> (21/6/2017)

³⁵ 'Putin: Russia Prepared Raising Nuclear Readiness Over Crimea', *New York Times* (15/3/2015), <https://web.archive.org/web/20150620143551/http://www.nytimes.com/aponline/2015/03/15/world/europe/ap-eu-russia-crimea.html> (21/6/2017)

Unemployment Rate Divergence

Moldova may have performed poorly in term of GDP per capita PPP growth, but it leads the pack when it comes to reducing the unemployment rate since 1990. Bulgaria also performed well in reducing its unemployment rate, with a middling performance in terms of purchasing power growth. By contrast, the economically successful Estonia, and poorly performing Czech Republic, both have increased their rate of unemployment since 1990 greatly. What key differences lead to this divergence?

Bulgaria suffered a bit less of a shock than Moldova and Estonia when initially liberalizing, but still more than Czechoslovakia, half of which would go on to become The Czech Republic in the coming years. Like Moldova, Bulgaria did not implement a 'shock therapy' approach to liberalisation, however, unlike Moldova, Bulgaria did not join the CIS, and tie itself economically to Russia. The data shows that, for the average rate of unemployment, the employment at the start of liberalisation is a good predictor. Additionally, Estonia and The Czech Republic start off at very low rates of unemployment, while Bulgaria starts off with a very high rate of unemployment.

This could suggest that the differences in growth are merely a product of measurements taken at different points in the fluctuation around an average. However, the data shows clearly that unemployment reacts to economic factors, such as shown by the spike in many countries when the 2007-2009 crisis hit. Additionally, a high (or low) relative unemployment rate at the start of liberalisation is not a predictor for economic success. The data shows that countries that are both successful and unsuccessful in achieving GDP per capita PPP growth can have low, and high starting unemployment rates. Finally, former membership of the Soviet Union is also not exclusive to either high or low starting unemployment rates. All put together, this means that the preconditions of unemployment cannot be the sole explanation for the growth (or reduction) of the unemployment rate.

Having addressed that possibility, the first few years of Bulgaria's recovery went well, if not stellar, recovering purchasing power by 1995, and reducing unemployment to below 15% in that time. The unemployment in Moldova meanwhile declined steadily until 1996, when the socialists came back into power, and a significant dip in unemployment occurred, followed by a rapid spiking until 1999, coinciding with a downturn in the purchasing power per capita. Additionally, in 1997 there was a slump in the purchasing power growth, caused by a minor crisis in Asia.³⁶ This too coincided with a minor increase in the unemployment rate. The data validates this correlation between purchasing power and the unemployment rate. Intuitively this also makes sense, it is harder to create jobs selling a product when the internal market can spend less money to afford it, and people without jobs will tend to have less purchasing power than those with, thus dragging the average down. That being said, the data does not show every up or down-turn in one variable having a proportionate effect on the other.

A good example of this occurs in Bulgaria between 1998 and 2001. A pro-EU party, which came into power in 1997, pushed through a series of economic reforms, trying to gain favour with foreign powers. They

³⁶ James Roaf et. al, '25 years of Transition', V, 4, 13.

managed to create growth in the economy, but caused living standards to deteriorate drastically.³⁷ The unemployment rate continued to increase between 1998 and 2001, reaching higher than the 1990 levels, despite a trend of purchasing power growth in every year but 1999 (which was compensated for by the growth in 2000).

From 2001 onwards Bulgaria fared better, as the new regime continued the reforms at a slower pace, and joined the NATO in 2004, and the EU in 2007. Unemployment dropped to one of the lowest in the region by 2008, alongside a rising growth in purchasing power.³⁸ Moldova meanwhile remained at a stable level of unemployment, despite regime changes between 2001 and 2006, dropping to a low in 2007 before the crisis hit.

The crisis affected both countries, though Moldova less so than Bulgaria, despite Bulgaria experiencing a smaller decline in growth, and both countries' unemployment rate increased. Both countries adopted a different regime following the crisis in 2009. The Bulgarian coalition took significant austerity measures, and the Moldovan government attacked corruption.^{39,40} Moldova gained an association with the EU in 2014, and both countries saw a final downturn in unemployment in 2015.

In summary, Moldova and Bulgaria both opted for a more gradual approach to liberalisation. Regimes changed several times over the course of the period, with varying effect. Policy aimed at socialisation appears to reduce unemployment in the short term, whereas policy aimed at liberalisation and austerity appears to increase it in the short term. These policies appear to dampen or exacerbate the effects of a growing or shrinking economy in general, though as seen in Bulgaria they can also outweigh the direct effects of the economy. When looking at the long term however, it may be that the socialising policies accompanying a regime change are 'cashing in' on the reforms pushed through by the previous, liberalising regime. The economic growth gained in these cases may have reduced unemployment on its own, with its effects merely being exacerbated by the socialist policies. Other factors that the data showed to be of influence, such as various taxes, arable land per capita, and foreign direct investment, vary across the countries, and appear to be of less influence on the growth of unemployment.

The Czech Republic contrasts in several manners, having experienced levels of economic shock similar to Poland, and implementing a 'shock therapy' approach to liberalisation similar to both Poland and the Baltic states, while still part of Czechoslovakia.⁴¹ In 1993 The Czech Republic dissolved from Czechoslovakia, in a peaceful event known as the velvet revolution. Both The Czech Republic and Estonia experienced increasing rates of unemployment up to the early 2000's, although the growth (alongside the economic growth) was more pronounced in Estonia. Czech Republic remained internally stable during this time, similar to Estonia. From 2000 onwards Estonia's unemployment came back down, whilst The Czech

³⁷ Brigitte Fehlau, Peter Schwarz, 'Ex-King Simeon II named new prime minister of Bulgaria', *World Socialist Web Site* (24/7/2001), <http://www.wsws.org/en/articles/2001/07/bulg-j24.html> (28/6/2017).

³⁸ 'Country Profile: Bulgaria', *Library of Congress* (2006), <https://www.loc.gov/rr/frd/cs/profiles/Bulgaria.pdf> (28/6/2017).

³⁹ 'Bulgarian FinMin Stresses Fiscal Discipline at Harvard, Promotes Own Brainchild', *Novinite.com* (2/3/2011), http://www.novinite.com/view_news.php?id=125819 (28/6/2017).

⁴⁰ 'Audit links local tycoon to \$1bn Moldovan bank fraud', *IntelliNews* (5/5/2015), <http://www.intellinews.com/audit-links-local-tycoon-to-1bn-moldovan-bank-fraud-500446512/?source=moldova&archive=bne> (28/6/2017).

⁴¹ James Roaf et. al, '25 years of Transition', 13-14.

Republic's showed only a mild downward trend until both countries joined the EU in 2004. From there to the 2008 crisis both countries' unemployment went down, though again the effect was more pronounced in Estonia.

The Czech Republic had maintained a steady, if slow economic growth up to this point, and the economic crisis, while stagnating the economy, did not cause as much damage as it did in Estonia. The unemployment rate too did not increase by as much as it did in Estonia, but neither did it come back down as much or as quickly, remaining roughly stable around 7% since 2009. Estonia reached a similar level at the end of measurements. In summary, The Czech Republic and Estonia followed a 'shock therapy' approach to liberalisation, and maintained regimes aimed at liberalisation throughout the period measured.

Taking into account the previous findings, this would create a situation where there is an initial exacerbation of the unemployment rate caused by liberalisation policies. Thereafter the consistent liberalisation policies themselves would maintain a level of unemployment, while the rate consistently follows the growth of the economy. The differences in magnitude of change can then further be explained by the difference in magnitude of growth between Estonia and The Czech Republic.

Furthermore, the actual rate of unemployment, both at the end of measurement and on average, in Estonia and The Czech Republic are some of the lowest in region. Poland follows a very similar pattern to Estonia and The Czech Republic both in terms of the unemployment rate and policy, but ends up lower than its starting point. This, combined with the trend of unemployment going down after a period of liberalisation in Moldova and Bulgaria, suggests that liberalisation in the long term creates a lower average level of unemployment. However, in order to bring it down below a certain point appears to require socialist policies taking advantage of previously implemented liberal policies.

The growth in unemployment rate then appears to be affected by both the policies implemented, and the conditions at the start of liberalisation. The policies in this case both affecting, and exacerbating the effects of economic growth or decline. In the long term however, it appears that liberal policies led to a lower average unemployment rate, at higher levels of purchasing power, than socialist policies. This last conclusion is supported by the data, in that countries with higher taxes on international trade, such as Bulgaria and Moldova, have higher average unemployment rates than those with lower such taxes, like Estonia and The Czech Republic.

Suicide Rate Divergence

In terms of reducing the suicide rate, Hungary, Albania, and The Czech Republic did best, whereas Poland and Romania performed most poorly. Unfortunately, the data for Albania prior to 2000 remains absent, but as it has maintained the lowest overall suicide rate since then (and declining), it is still an interesting case.

Hungary started in 1990 as the country with the highest suicide rate, which has shown a remarkably strong downward trend since, with the exception of the years directly after the 2008 recession. Hungary started off its liberalisation unremarkably, recovering from the initial shock of liberalisation around the middle of the 90's. The economy achieved stable, if relatively slow, growth throughout the rest of the 90's and up to the crisis in 08. Though the political regime switched between socialist and liberal policy every election

until 2014, not unlike Bulgaria and Moldova, the country joined Nato in 1999, and the EU in 2004. The unemployment rate in Hungary achieved remarkable reduction during the first decade, reaching a low in 2001, and then grew until 2010 (with a spike for the crisis) before coming back down again. The Czech Republic, despite being far less pronounced, shows a similar pattern of the suicide rate, going down relatively consistently until the crisis, spiking up, and coming back down again by the end of measurements.

Albania on the other hand, despite having no data prior to 2000, shows a reduction in the suicide rate around the time of the crisis. Albania's liberalisation started off middle of the road, recovering from the initial recession by 1995. By 1997 however, Albania suffered from the economic crisis affecting Asia, alongside Bulgaria and Romania.⁴² This was exacerbated by the collapse of nationwide Ponzi-scheme, that had been in the making, supported by the government, since 1991.⁴³ This was followed by civil unrest, known as the Albanian civil war, in which the government was toppled, and in which the UN ended up intervening.⁴⁴ The socialist party then went on to win the next elections.⁴⁵ Despite this, Albania managed to achieve great economic growth in the years thereafter, achieving around 10% purchasing power growth even during the years surrounding the 2008 crisis. Unemployment has remained consistently high throughout the period measured, although the EU has praised Albania's attempts to reduce unemployment.⁴⁶ They remain sceptical of the democratic values of the country however, hampering Albania's attempts to join the EU.⁴⁷

In summary, Hungary had an unremarkable start to liberalisation, and achieved a stable if slow growth. The country remained peaceful, despite a constantly changing regime. It maintained a low unemployment rate, and managed to join the EU by 2004. Albania had a troubled liberalisation, both economically and politically, and suffered a high unemployment rate, but managed to achieve impressive economic growth despite this. Taking into account The Czech Republic, there are very few consistencies with regards to the countries which did well on reducing the suicide rate. Aside from some correlation with the 2008 economic crisis, and whether it affected the country or not, not much can be said yet.

Turning to Romania for contrast, it started off liberalisation roughly in the middle of the pack as well, receiving a relatively moderate economic shock, and recovering around 1996.⁴⁸ The internal politics surrounding the Romanian caused trouble as well. Protests against a former communist in government

⁴² James Roaf et. al, '25 years of Transition', V, 4, 13.

⁴³ Andrew Gumbel Lushnje, 'Albanian 'financiers' fail to play the game', *The Independent* (6/2/1997), <http://www.independent.co.uk/news/world/albanian-financiers-fail-to-play-the-game-1277155.html> (21/6/2017).

⁴⁴ 'Albanian Civil war (1997)', <http://www.globalsecurity.org/military/world/war/albania.htm> (21/6/2017)

⁴⁵ Dieter Nohlen; Philip Stöver, *Elections in Europe: A Data Handbook*, Nomos (2010), p. 140

⁴⁶ 'Ahmetaj: Premtimi për 300 mijë vende punë është mbajtur', *Shqip* (26/1/2017), <http://gazeta-shqip.com/lajme/2017/01/26/ahmetaj-premtimi-per-300-mije-vende-pune-eshte-mbajtur/> (21/6/2017).

⁴⁷ Alix Culbertson, 'Albania and Bosnia fail to impress at EU membership meeting over democratic value concerns', *Express* (1/2/2017), <http://www.express.co.uk/news/world/761758/Albania-Bosnia-Herzegovina-European-Union-membership-democratic-values> (21/6/2017).

⁴⁸ James Roaf et. al, '25 years of Transition', 13-14.

turned violent when that politician's followers showed up at the protests.⁴⁹ The subsequent fall-out between party members left the political parties of Romania fragmented. Corruption and scheming in the government was also a continual problem in the years after the start of liberalisation. The people no longer trusted their government, and many had lost their life savings due to corruption within the banks. Promises of reform had been made, and of holding those which had caused grievance accountable, but these promises were ultimately not kept. As a result, the (formerly communist) politician who had so controversially come into power right after the start of liberalisation, but had been ousted from power in 1996, came right back into power along with the socialist party.⁵⁰ The economic trouble during this time was compounded by the economic crisis in Asia that also hit Albania and Bulgaria.⁵¹ Following these times however, Romania experienced fast economic growth, perhaps as a belated result of the reforms, whilst maintaining a relatively low, but also fairly stable unemployment rate. Romania joined NATO in 2004, and the EU in 2007, boosting the economy, but only briefly before the crisis hit. The crisis was recovered from quickly, and left only a minor increase in unemployment in its wake. The suicide rate meanwhile, had remained stable after an initial uptick during the first years of liberalisation, until the crisis of 2008. During the crisis the suicide rate increases again, and does not quite come back down by the end of measurements. This pattern is mimicked by Poland, although the increase around the crisis is much bigger than that in Romania, and it does not come back down by the end of measurements.

In summary, Romania had a somewhat average liberalisation, aside from political problems, and corruption. It managed to achieve good growth despite these issues however, while maintaining a low unemployment rate, and joining the EU.

It should be clear by now that there is very little consistency between what countries do well, and which do not do well in terms of reducing the suicide rate. To explicate: The average suicide rate in Albania and Romania are low, despite one doing well and the other poorly in terms of overall change. Hungary's average suicide rate is high, despite the reduction over time, and Poland and The Czech Republic, doing poorly and well in terms of change respectively, are both average. The Czech Republic applied 'shock therapy' liberalisation, so did Poland. Hungary, Albania, and The Czech Republic were not part of the Soviet Union, neither were Poland or Romania. Poland and Romania achieved a lot of growth, so did Albania. Hungary did well in reducing unemployment, but The Czech Republic and Albania did not. Poland and The Czech Republic were politically stable, but Romania and Albania not so much. Countries that did both well and poorly have joined (or are attempting to join) the EU.

There are only two consistent patterns detectable from the data. Firstly, an uptick of the suicide rate around the time of the 2008 economic crisis, at least for those countries affected by it. And secondly an uptick in the early years of liberalisation for the Baltic states. The Baltic states being the only group of countries that was part of the Soviet Union, and applied 'shock therapy'. This implies that whilst not every

⁴⁹ Celestine Bohlen, 'Evolution in Europe; Romanian miners invade Bucharest'. *The New York Times* (15 June 1990), <http://www.nytimes.com/1990/06/15/world/evolution-in-europe-romanian-miners-invade-bucharest.html> (21/6/2017).

⁵⁰ Marius Dragomir, 'Romania's unforeseeable turning point', *Central Europe Review* 2 (2000), 43 <http://www.ce-review.org/00/43/roundup43romania.html> (21/6/2017).

⁵¹ James Roaf et. al, '25 years of Transition', V, 4, 13.

economic or unemployment change has a noticeable effect on the suicide rate, those that are strong enough to cause significant disruption to the social order may increase it. The social variables suspected to have explanatory power for those differences fall outside of the scope of this paper, but are certainly an area of interest for further research. Why for example, the crisis in Poland, despite the country maintaining continuous growth, resulted in so much worse of an increase in the suicide rate than it did in a country like Romania or The Czech Republic, remains unknown.

Net Migration Rate Divergence

Albania and Estonia performed well on increasing the amount of immigration compared to emigration, whereas Lithuania and Hungary performed poorly, reducing the amount of immigration compared to emigration.

As Albania, Hungary, and the Baltic states have been discussed already, a brief recap will suffice at this point. Albania, despite both economic and political disturbances, achieved a high rate of purchasing power growth over the period. It also managed to keep a low suicide rate from 2000 onwards (the first measurement available), but struggled to reduce its high unemployment rate. It did not apply 'shock therapy' when liberalising, nor did it join the EU, though it has attempted (and continues) to do so. It started off with the most emigration of all countries measured, at around -2.73% of the population per year, but managed to reduce that to -0.63% at the time of the last measurement.

Hungary, despite a constantly switching regime, remained peaceful, and achieved stable, but moderate economic growth. It maintained a low average unemployment rate across the period measured, and though it started off with one the highest suicide rates, it managed to reduce it greatly over time. The suicide rate itself remained high on average though. Hungary started off with the highest immigration rate, at +0.18% per year, and despite dropping to +0.06% per year, remains above average for the region.

The Baltic states had a rough start to their liberalisation, coming from the Soviet Union and applying 'shock therapy' on top of a relatively strong economic contraction. Hereafter they went on to achieve the highest growth rates in the region, and remained internally stable, joining the EU in 2004. Lithuania started off with, and maintained a higher average unemployment rate than Estonia did, though they converged towards the 2008 crisis. After this, Estonia's rate fell back down more than Lithuania's did. Both countries' suicide rates spiked in the early years of liberalisation, though Lithuania's rose higher than Estonia's, and came back down much more gradually, maintaining the highest average in the region. By the end of measurements, the suicide rate in Estonia had spiked back up to around the same level of Lithuania. Estonia started off as the country with the second highest emigration at -1.45%, but this spiked up during the nineties, and remained close to break-even until the end of measurements, at -0.18%. Lithuania by contrast started off at a more modest, though still above average, level of emigration, at -0.54%. this remained stable until the early 2000's, after which it dropped down to the highest amount of immigration at the end of measurements, at -1.135%.

In summary, there are again very few obvious patterns that emerge. The 'shock therapy' approach is represented both in countries whose net migration rises and those in which it falls, as are politically stable

regimes. Both also have countries with EU membership, high unemployment, high growth rates, and high suicide rates.

One explanation, convergence towards the centre, with those starting with high immigration rising, and those with high emigration falling, is disputed by Lithuania's drop from above average to highest immigration. Start point or growth are the next possible explanators. Albania has a low starting GDP per capita PPP and high growth, Hungary has a high starting GDP per capita PPP and low growth, and both Baltic states have an average starting GDP per capita PPP and high growth. This might be indicative of at least some correlation between a low starting, yet high growth economy doing well.

However, the data shows neither high growth nor lower unemployment to be correlated with net migration. When looking at other countries, Romania has low starting purchasing power and high growth, but relatively poor change in net migration. Moldova meanwhile has an even lower starting point, and terrible growth, but does very well on improving its migration balance. This confirms that these two factors are of lesser influence at best.

The data further shows that public health care expenditure (as a % of GDP) is correlated with more immigration, however it again appears of lesser influence, as public health care expenditure goes up over time in Albania and Lithuania, but down in Estonia and Hungary. Other variables which the data shows have some relation, such as arable land per capita and %urban population in 1990, profit tax, and the external balance on goods and services, again vary across these countries. Without a consistent indication, these variables too are considered of lesser influence.

The only other variable of predictive value to the level of net migration is the net migration in 1992, the earliest point of measurement. This suggests that in most cases the level of net migration stays roughly the same, which is reflected in the small changes in yearly migration seen in most countries. This is of little help in explaining those countries for which the rate did change significantly though.

In short, while there is some correlation between the average net migration, and certain preconditions and policies such as prior levels of migration and public health care, the actual changes in migration patterns such as displayed by Albania or Lithuania find no explanation in this study. Other factors, such as social changes, or perhaps legal constructs, which lie beyond the scope of this study, may provide answers however, and are of interest for further research.

Conclusion

The question this study sought to answer was which factors could explain the divergent success of countries' liberalisation in formerly communist eastern Europe. It aimed to do so by filling in a gap in current literature by comparing many countries on four different categories of success. The four categories of GDP per capita PPP, unemployment, the suicide rate, and net migration were viewed as successful if they displayed improvement over time between 1990 and 2015. Factors that were related to divergence were then determined by comparing countries that were relatively successful with those that were not. This comparison took the form of an analysis of the historical context of the countries involved, as well as several variables that were measured across all countries. The variables chosen were guided by existing literature on the topic, arranged into three broad hypotheses. Both general correlations between these independent variables, and the dependent variables of success, as well as a country's place in

relation to the average of a variable, were taken into account during this analysis. This led to the following conclusions.

Firstly, the divergence of GDP per capita PPP between countries in formerly communist eastern Europe is explained primarily as a result of policy. Countries with varying levels of initial wealth and economic shock performed differently based primarily on how far their policy went in terms of liberalisation, with 'shock policy' generally providing the best results. It must be noted that internal political and social conflicts either influenced, or limited how fast countries could liberalise however, thus affecting policy. Finally, though not strictly relating to policy, joining the EU was more beneficial to growth than not doing so, the increased vulnerability to the 2008 crisis being more than compensated for by the increased growth prior and afterwards.

Secondly, the divergence of the unemployment rate is explained primarily through a combination of policy and preconditions. Countries with higher unemployment rates to start off with could gain a lot of ground through liberalisation, and in the long term more liberal economic policies appear to achieve lower average unemployment rates as a result of more economic growth. However, in the short term harsh liberalisation policies would cause more unemployment, whereas socialist policies reduced the unemployment rate, albeit at the cost of future growth. Those countries which followed a period of liberal policies with a period of socialist policies therefore managed to achieve the largest, if only temporary, reductions in unemployment.

Thirdly, the divergence of the suicide rate is explained primarily as a result of shocks to the social order. While far from conclusive, the data suggests that economic shocks of sufficient magnitude to affect the social order can cause a spike in the suicide rate. This is visible in the formerly communist countries which applied 'shock policy' (the Baltic states) as well as to a lesser degree overall in the 2008 crisis. Further explanations could be found by researching social factors, which lie beyond the scope of this paper.

Finally, the divergence in net migration remains unexplained. While the data supports certain correlations for the overall levels of migration being tied to previous levels of migration, and public health care, there are no conclusive patterns that emerge to explain the change over time. As the scope and data used in this study remains limited, further explanations might be found in researching social factors, or legal constructs, which lie beyond the scope of this paper.

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Appendix 1: Preconditions hypothesis(1): (independent variables for 1990 unless listed otherwise)

Cumulative GDP per capita PPP growth (% of 1990)									
Independent Variable:	Coef.	Std. Err.	t	P>t	[95% Conf. Interval]				
Employment in agriculture (% of total)	0.1154171	0.0832318	1.39	0.238	-0.1156714 0.346506				
Employment in industry (% of total)	0.0655722	0.0279571	2.35	0.079	-0.0120491 0.143194				
Employment in services (% of total)	0.0663853	0.0512528	1.3	0.265	-0.0759155 0.208686				
Warsaw Pact Membership (years total)	-0.0433617	0.0549679	-0.79	0.466	-0.1846611 0.097938				
Soviet Union Membership (years total)	-0.0218757	0.0114364	-1.91	0.114	-0.0512739 0.007523				
Trade (% of GDP)	-0.0203679	0.0264708	-0.77	0.476	-0.0884133 0.047677				
Industry (% of GDP)	0.5340644	0.1514691	3.53	0.039	0.0520221 1.016107				
Urban Population (% of total population)	-0.0510444	0.0330951	-1.54	0.184	-0.136118 0.034029				
Arable land (hectares per person)	-1.428749	1.984036	-0.72	0.546	-9.965368 7.10787				
Total Natural Resources Rents (%GDP)	0.0521733	0.0524231	1	0.424	-0.1733851 0.277732				
GDP (Current us\$)	3.34E-12	1.44E-11	0.23	0.828	-3.67E-11 4.34E-11				
GDP per capita PPP (current us\$):	-0.0001705	0.0001468	-1.16	0.298	-0.0005478 0.000207				
Unemployment (total % of labour force)	0.090734	0.0896936	1.01	0.358	-0.1398308 0.321299				
Net Migration in 1992	-1.04E+01	9.10E+00	-1.15	0.303	-3.38E+01 1.29E+01				
Suicide Rate (Suicides per 100,000 people(yearly))	-0.1942111	0.0988747	-1.96	0.121	-0.4687312 0.080309				

Appendix 2: Preconditions hypothesis(2): (independent variables for 1990 unless listed otherwise)

Unemployment (% of 1991)								
Independent Variable:	Coef.	Std. Err.	t	P>t	[95% Conf. Interval]			
Employment in agriculture (% of total)	-8.232002	8.437794	-0.98	0.362	-28.18421 11.72021			
Employment in industry (% of total)	1.735782	5.169075	0.34	0.747	-10.48714 13.9587			
Employment in services (% of total)	5.36693	6.050113	0.89	0.404	-8.939314 19.67317			
Warsaw Pact Membership (years total)	-0.1176629	6.010655	-0.02	0.985	-13.34703 13.1117			
Soviet Union Membership (years total)	0.8321133	1.242202	0.67	0.517	-1.901956 3.566183			
Trade (% of GDP)	-0.0080459	1.570909	-0.01	0.996	-3.851921 3.835829			
Industry (% of GDP)	-5.459293	6.880966	-0.79	0.486	-27.3576 16.43901			
Urban Population (% of total population)	3.884062	3.338797	1.16	0.269	-3.464582 11.23271			
Arable land (hectares per person)	-235.804	37.28645	-6.32	0.008	-354.4661 -117.142			
Total Natural Resources Rents (%GDP)	7.413828	0.9486024	7.82	0.016	3.332322 11.49533			
GDP (Current us\$)	1.01E-10	1.44E-09	0.07	0.947	-3.61E-09 3.81E-09			
GDP per capita PPP (current us\$):	0.0179603	0.0062338	2.88	0.035	0.0019357 0.033985			
Unemployment (total % of labour force)	-17.72075	5.762003	-3.08	0.011	-30.40283 -5.03866			
Net Migration in 1992	-814.9376	921.8738	-0.88	0.396	-2843.968 1214.093			
Suicide Rate (Suicides per 100,000 people(yearly))	3.961017	6.350137	0.62	0.548	-10.40399 18.32603			

Appendix 3: Preconditions hypothesis(3): (independent variables for 1990 unless listed otherwise)

Unemployment avg (% of total labour force)							
Independent Variable:	Coef.	Std. Err.	t	p>t	[95% Conf.	Interval]	
Employment in agriculture (% of total)	-0.0397477	0.1598761	-0.25	0.811	-0.4177945	0.338299	
Employment in industry (% of total)	0.0274477	0.0924582	0.3	0.775	-0.1911812	0.246077	
Employment in services (% of total)	0.0288884	0.1134157	0.25	0.806	-0.2392971	0.297074	
Warsaw Pact Membership (years total)	-0.2169082	0.1381194	-1.57	0.145	-0.5209069	0.087091	
Soviet Union Membership (years total)	-0.0188912	0.0317127	-0.6	0.563	-0.0886903	0.050908	
Trade (% of GDP)	-0.0948181	0.0822013	-1.15	0.293	-0.2959575	0.106321	
Industry (% of GDP)	0.4826602	1.016028	0.48	0.667	-2.750795	3.716115	
Urban Population (% of total population)	-0.0767175	0.0869328	-0.88	0.396	-0.2680554	0.11462	
Arable land (hectares per person)	-17.07919	12.35273	-1.38	0.261	-56.39109	22.23271	
Total Natural Resources Rents (%GDP)	0.0838043	0.5728991	0.15	0.897	-2.381182	2.54879	
GDP (Current us\$)	-4.98E-11	7.83E-11	-0.64	0.552	-2.51E-10	1.51E-10	
GDP per capita PPP (current us\$):	-0.0006975	0.0004406	-1.58	0.174	-0.0018301	0.000435	
Unemployment (total % of labour force)	0.4756284	0.1391002	3.42	0.006	0.1694708	0.781786	
Net Migration in 1992	-1.01E+02	5.02E+01	-2	0.07	-211.0077	9.91E+00	
Suicide Rate (Suicides per 100,000 people(yearly))	0.0254621	0.1338969	0.19	0.853	-0.2774338	0.328358	

Appendix 4: Preconditions hypothesis(4): (independent variables for 1990 unless listed otherwise)

Cumulative Net Migration (% of population)							
<i>Independent Variable:</i>	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]	
Employment in agriculture (% of total)	-0.0069144	0.0030492	-2.27	0.058	-0.0141247	0.000296	
Employment in industry (% of total)	-0.0007483	0.0023095	-0.32	0.755	-0.0062095	0.004713	
Employment in services (% of total)	0.0013988	0.0028	0.5	0.633	-0.0052222	0.00802	
Warsaw Pact Membership (years total)	0.0134139	0.0037039	3.62	0.004	0.0052615	0.021566	
Soviet Union Membership (years total)	0.0001027	0.0011559	0.09	0.931	-0.0024413	0.002647	
Trade (% of GDP)	0.0047921	0.0026103	1.84	0.116	-0.0015951	0.011179	
Industry (% of GDP)	-0.0318213	0.038425	-0.83	0.468	-0.1541069	0.090464	
Urban Population (% of total population)	0.0063104	0.002608	2.42	0.034	0.0005702	0.012051	
Arable land (hectares per person)	1.195425	0.3054073	3.91	0.03	2.23E-01	2.17E+00	
Total Natural Resources Rents (%GDP)	-0.0333469	0.0114067	-2.92	0.1	-0.0824258	0.015732	
GDP (Current us\$)	3.09E-12	2.60E-12	1.19	0.288	-3.59E-12	9.76E-12	
GDP per capita PPP (current us\$):	0.0000314	0.0000152	2.07	0.094	-7.67E-06	7.04E-05	
Unemployment (total % of labour force)	-0.0078847	0.006764	-1.17	0.268	-0.0227722	0.007003	
Net Migration in 1992	2.602847	0.3766247	6.91	0	1.773902	3.431793	
Suicide Rate (Suicides per 100,000 people(yearly))	0.0009739	0.0038832	0.25	0.808	-0.0078106	0.009758	

Appendix 5: Preconditions hypothesis(5): (independent variables for 1990 unless listed otherwise)

Suicide Rate avg (suicides per 100,000 people (yearly))								
Independent Variable:	Coef.	Std. Err.	t	P>t	[95% Conf. Interval]			
Employment in agriculture (% of total)	-0.2464102	0.3823234	-0.64	0.54	-1.150461	0.657641		
Employment in industry (% of total)	-0.1994074	0.2151735	-0.93	0.385	-0.708212	0.309397		
Employment in services (% of total)	0.1322145	0.2747028	0.48	0.645	-0.5173545	0.781783		
Warsaw Pact Membership (years total)	0.6557605	0.3775519	1.74	0.11	-0.1752258	1.486747		
Soviet Union Membership (years total)	0.2235955	0.0594069	3.76	0.003	0.0928418	0.354349		
Trade (% of GDP)	0.2994816	0.1099778	2.72	0.035	0.0303757	0.568588		
Industry (% of GDP)	-2.678946	1.838525	-1.46	0.241	-8.529953	3.17206		
Urban Population (% of total population)	0.5145842	0.1971457	2.61	0.024	0.0806693	0.948499		
Arable land (hectares per person)	49.25515	22.07286	2.23	0.112	-20.99054	119.5008		
Total Natural Resources Rents (%GDP)	-0.8706565	0.292249	-2.98	0.097	-2.128103	0.38679		
GDP (Current us\$)	4.31E-11	1.35E-10	0.32	0.762	-3.03E-10	3.90E-10		
GDP per capita PPP (current us\$):	0.0004334	0.001028	0.42	0.691	-0.0022092	0.003076		
Unemployment (total % of labour force)	0.0197068	0.5571377	0.04	0.972	-1.206545	1.245959		
Net Migration in 1992	-84.23079	62.92403	-1.34	0.208	-2.23E+02	54.26406		
Suicide Rate (Suicides per 100,000 people(yearly))	0.9022519	0.2392919	3.77	0.004	0.3609361	1.443568		

Appendix 6: Preconditions hypothesis(6): (independent variables for 1990 unless listed otherwise)

Suicide Rate 2015 (% of 1990)		Coef.	Std. Err.	t	p>	[95% Conf. Interval]
<i>Independent Variable:</i>						
Employment in agriculture (% of total)	0.04993607	0.0196134	2.52	0.045	0.0013684	0.097353
Employment in industry (% of total)	0.0020827	0.0121877	0.17	0.87	-0.0277395	0.031905
Employment in services (% of total)	-0.0096567	0.0140472	-0.69	0.517	-0.0440289	0.024716
Warsaw Pact Membership (years total)	no data					
Soviet Union Membership (years total)	-0.000436	0.0035648	-0.12	0.906	-0.0086564	0.007785
Trade (% of GDP)	-0.0084124	0.0080462	-1.05	0.355	-0.0307522	0.013927
Industry (% of GDP)	0.0546151	0.0082672	6.61	0.022	0.0190443	0.090186
Urban Population (% of total population)	-0.0280156	0.0164219	-1.71	0.126	-0.0658845	0.009853
Arable land (hectares per person)	-9.539923	1.633263	-5.84	0.028	-16.56729	-2.51256
Total Natural Resources Rents (%GDP)	0.0153185	0.0968068	0.16	0.9	-1.214729	1.245366
GDPCurrentus	9.40E-12	8.50E-12	1.11	0.349	-1.76E-11	3.64E-11
GDP per capita PPP (current us\$):	-0.000072	0.000041	-1.76	0.154	-0.0001859	4.19E-05
Unemploymenttotaloflabourfor	0.0095651	0.0201055	0.48	0.647	-0.0367983	0.055929
Net Migration in 1992	-2.03E+00	1.76E+00	-1.15	0.283	-6.08E+00	2.03E+00
Suicide Rate (Suicides per 100,000 people(yearly))	-0.0265384	0.0119513	-2.22	0.057	-0.0540983	0.001021

GDP per capita PPP (current us\$):

<i>Independent Variable:</i>	Coefficient	Std. Err.	z	p> z	[95% Conf. Interval]
Taxes on income, profits, and capital gain (% of revenue)	-447.867	68.11446	-6.58	0.000	-581.3689 -314.365
Taxes on international trade (% of revenue)	739.1495	108.1723	-6.83	0.000	-951.1632 -527.136
Total tax rate (% of commercial profits)	-114.3505	25.12891	-4.55	0.000	-163.6023 -65.0988
Profit tax (% of commercial profits)	63.92919	76.02686	0.84	0.400	-85.08071 212.9391
Tariff rate (applied weighted mean, all products)	-2237.322	159.122	-14.06	0.000	-2549.195 -1925.45
Expenditure on education (% of GDP)	-219.1739	70.23999	-3.12	0.002	-356.8417 -81.506
Health expenditure, public (% of GDP)	2329.361	578.2302	4.03	0.000	1196.051 3462.671
Real interest rate (%)	31.84693	19.16825	1.66	0.097	-5.722143 69.41601

Unemployment total% of labour force (ILO estimate):

<i>Independent Variable:</i>	Coefficient	Std. Err.	z	p> z	[95% Conf. Interval]
Taxes on income, profits, and capital gain (% of revenue)	-0.0788914	0.0372468	-2.12	0.034	-0.1518937 -0.00589
Taxes on international trade (% of revenue)	1.33E-01	6.14E-02	2.17	0.030	1.27E-02 2.53E-01
Total tax rate (% of commercial profits)	-0.0201238	0.0204623	-0.98	0.325	-0.0602292 0.019982
Profit tax (% of commercial profits)	-0.096848	0.0791135	-1.22	0.221	-0.2519076 0.058212
Tariff rate (applied weighted mean, all products)	0.1200122	0.0969109	1.24	0.216	-0.0699296 0.309954
Expenditure on education (% of GDP)	-0.0290743	0.0452593	-0.64	0.521	-0.1177809 0.059632
Health expenditure, public (% of GDP)	-0.7951695	0.2973565	-2.67	0.007	-1.377977 -0.21236
Real interest rate (%)	0.0155904	0.0101302	1.54	0.124	-0.0042645 0.035445

Appendix 7: Policy hypothesis (1):

Net Migration (% of population):						
<i>Independent Variable:</i>	Coefficient	Std. Err.	z	P> z	[95% Conf. Interval]	[Interval]
Taxes on income, profits, and capital gain (% of revenue)	8.01E-06	0.0001256	0.06	0.949	-0.0002382	0.000254
Taxes on international trade (% of revenue)	-0.0001063	0.0002194	-0.48	0.628	-0.0005363	0.000324
Total tax rate (% of commercial profits)	0.0000658	0.0000588	1.12	0.263	-0.0000494	0.000181
Profit tax (% of commercial profits)	0.000875	0.000405	2.16	0.031	0.0000812	0.001669
Tariff rate (applied weighted mean, all products)	0.0001854	0.0003545	0.52	0.601	-0.0005095	0.00088
Expenditure on education (% of GDP)	-0.0000396	0.0001329	-0.3	0.766	-0.0003	0.000221
Health expenditure, public (% of GDP)	0.0021644	0.0007422	2.92	0.004	0.0007096	0.003619
Real interest rate (%)	0.0000478	0.0000461	1.04	0.300	-0.0000426	0.000138

Suicide Rate (People per 100,000, yearly):						
<i>Independent Variable:</i>	Coefficient	Std. Err.	z	P> z	[95% Conf. Interval]	[Interval]
Taxes on income, profits, and capital gain (% of revenue)	0.054592	0.0564317	0.97	0.333	-0.0560121	0.165196
Taxes on international trade (% of revenue)	1.39E-01	1.11E-01	1.25	0.211	-7.85E-02	3.56E-01
Total tax rate (% of commercial profits)	0.0120718	0.0419077	0.29	0.773	-0.0700658	0.094209
Profit tax (% of commercial profits)	no data					
Tariff rate (applied weighted mean, all products)	0.6901487	0.1543373	4.47	0.000	0.3876531	0.992644
Expenditure on education (% of GDP)	0.1222857	0.0522929	2.34	0.019	0.0197936	0.224778
Health expenditure, public (% of GDP)	1.466852	0.4328847	3.39	0.001	0.6184133	2.31529
Real interest rate (%)	0.0150049	0.0120108	1.25	0.212	-0.0085358	0.038546

Appendix 8: Policy hypothesis (2):

GDP per capita PPP (current us\$):

<i>Independent Variable:</i>	Coefficient	Std. Err.	z	P> z	[95% Conf. Interval]
Foreign direct investment, net inflows (% of GDP)	74.3177	66.06313	1.12	0.261	-55.16366 203.7991
Trade (% of GDP)	185.1875	10.02858	18.47	0.000	165.5319 204.8432
Exports of goods and services (% of GDP)	355.2361	18.174	19.55	0.000	319.6157 390.8565
External balance on goods and services (% of GDP)	232.0236	45.48288	5.1	0.000	142.8788 321.1685
Membership of the EU (In years)	1786.761	58.49044	30.55	0.000	1672.121 1901.4

Unemployment total% of labour force (ILO estimate):

<i>Independent Variable:</i>	Coefficient	Std. Err.	z	P> z	[95% Conf. Interval]
Foreign direct investment, net inflows (% of GDP)	-0.1024041	0.0303568	-3.37	0.001	-0.1619024 -0.04291
Trade (% of GDP)	-0.0177744	0.006965	-2.55	0.011	-0.0314255 -0.00412
Exports of goods and services (% of GDP)	-0.0180224	0.0131374	-1.37	0.170	-0.0437712 0.007726
External balance on goods and services (% of GDP)	0.0828854	0.02286	3.63	0.000	0.0380807 0.12769
Membership of the EU (In years)	-0.0833653	0.0600168	-1.39	0.165	-0.200996 0.034265

Net Migration (% of population):

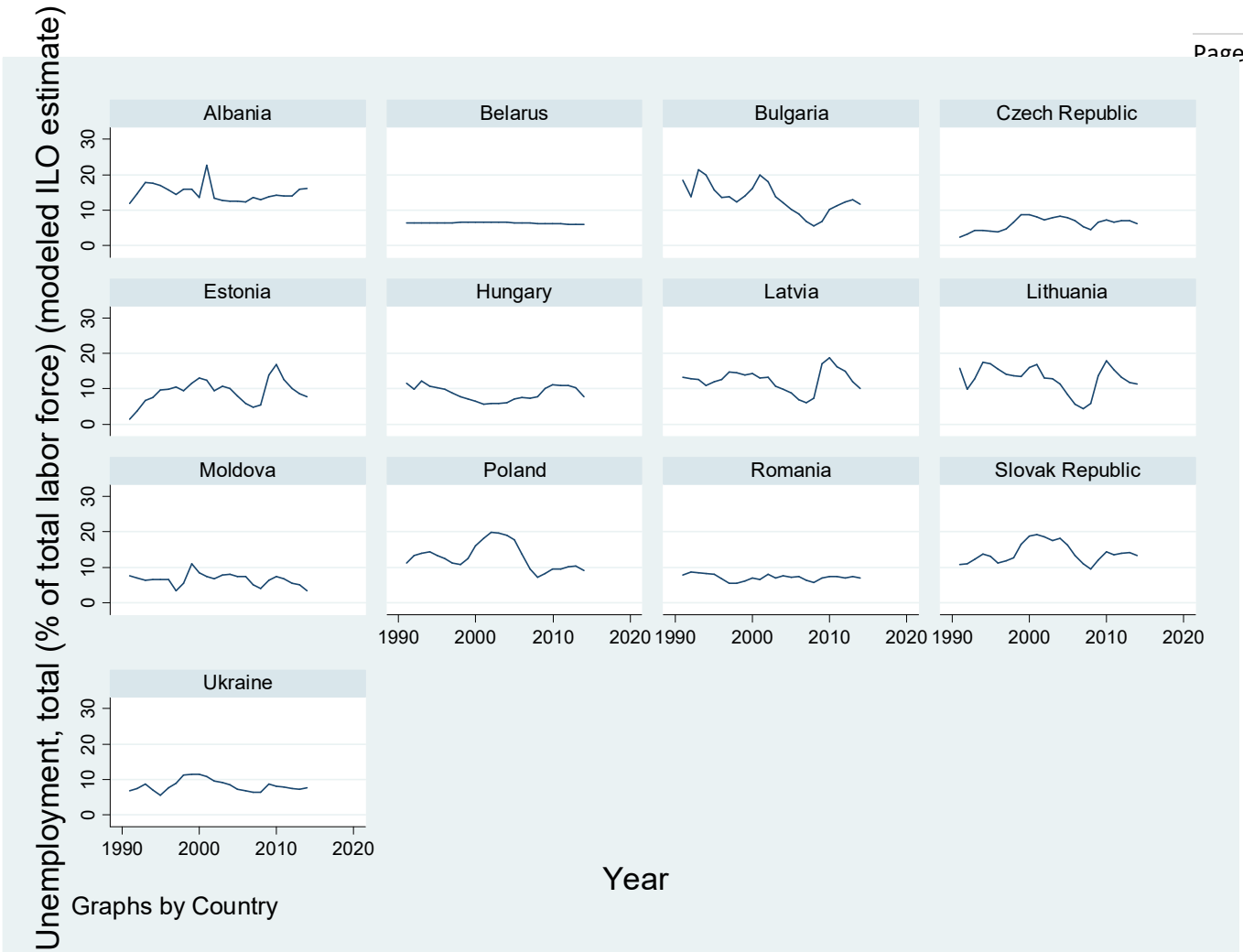
<i>Independent Variable:</i>	Coefficient	Std. Err.	z	P> z	[95% Conf. Interval]
Foreign direct investment, net inflows (% of GDP)	0.0000308	0.00014	0.22	0.826	-0.0002435 0.000305
Trade (% of GDP)	0.0000137	0.0000263	0.52	0.603	-0.0000379 6.53E-05
Exports of goods and services (% of GDP)	0.0000841	0.000046	1.83	0.068	-6.11E-06 0.000174
External balance on goods and services (% of GDP)	0.0002707	0.0000767	3.53	0	0.0001202 0.000421
Membership of the EU (In years)	0.0001146	0.0002198	0.52	0.602	-0.0003162 0.000545

Suicide Rate (People per 100,000, yearly):

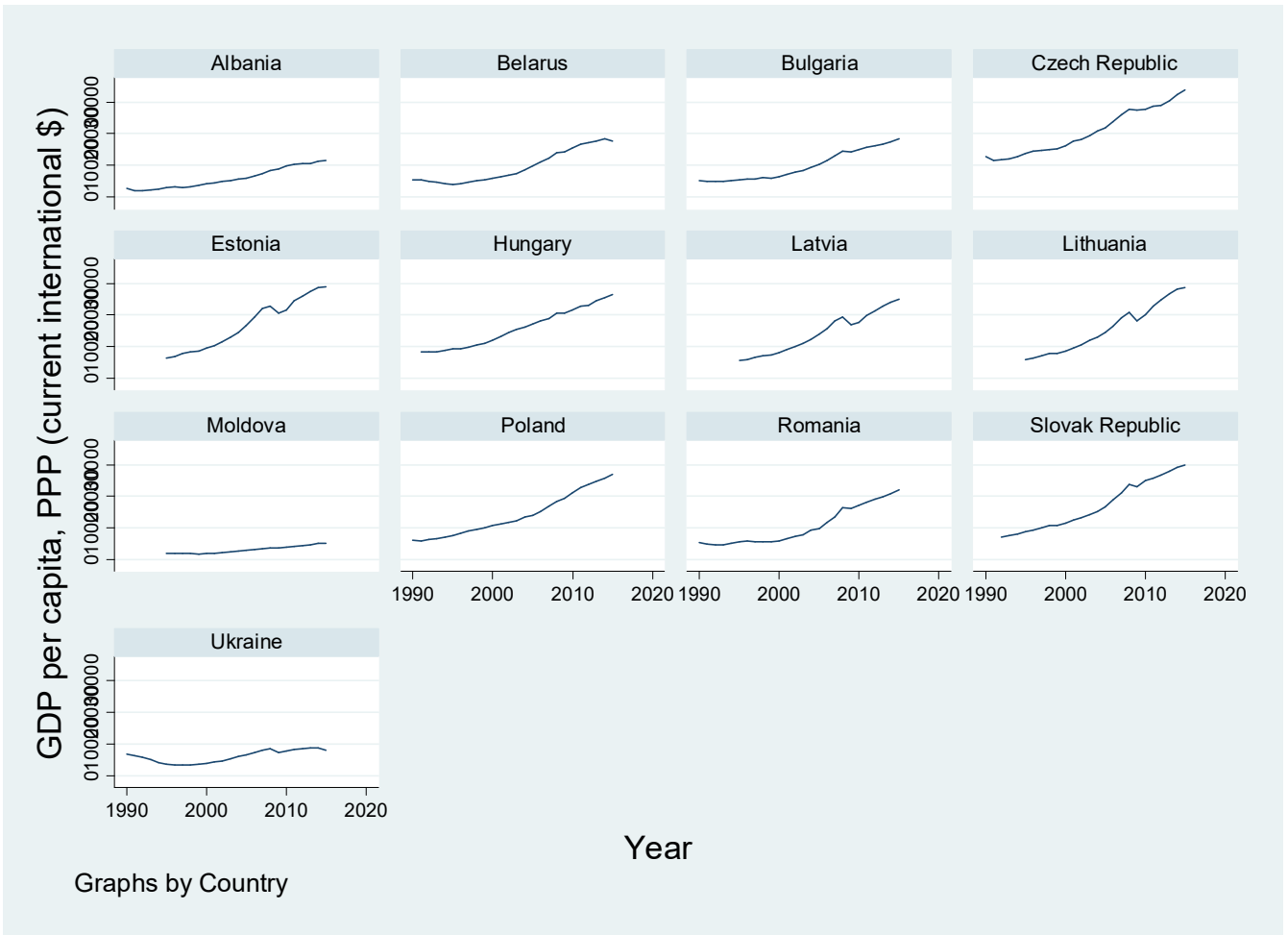
<i>Independent Variable:</i>	Coefficient	Std. Err.	z	P> z	[95% Conf. Interval]
Foreign direct investment, net inflows (% of GDP)	-0.2045313	0.0695191	-2.94	0.003	-0.3407863 -0.06828
Trade (% of GDP)	-0.0089081	0.0106954	-0.83	0.405	-0.0298706 0.012055
Exports of goods and services (% of GDP)	-0.0160677	0.0200933	-0.8	0.424	-0.0554497 0.023314
External balance on goods and services (% of GDP)	-0.0085453	0.0447899	-0.19	0.849	-0.0963319 0.079241
Membership of the EU (In years)	-0.0455183	0.0961681	-0.47	0.636	-0.2340044 0.142968

Appendix 9: International Hypothesis(1):

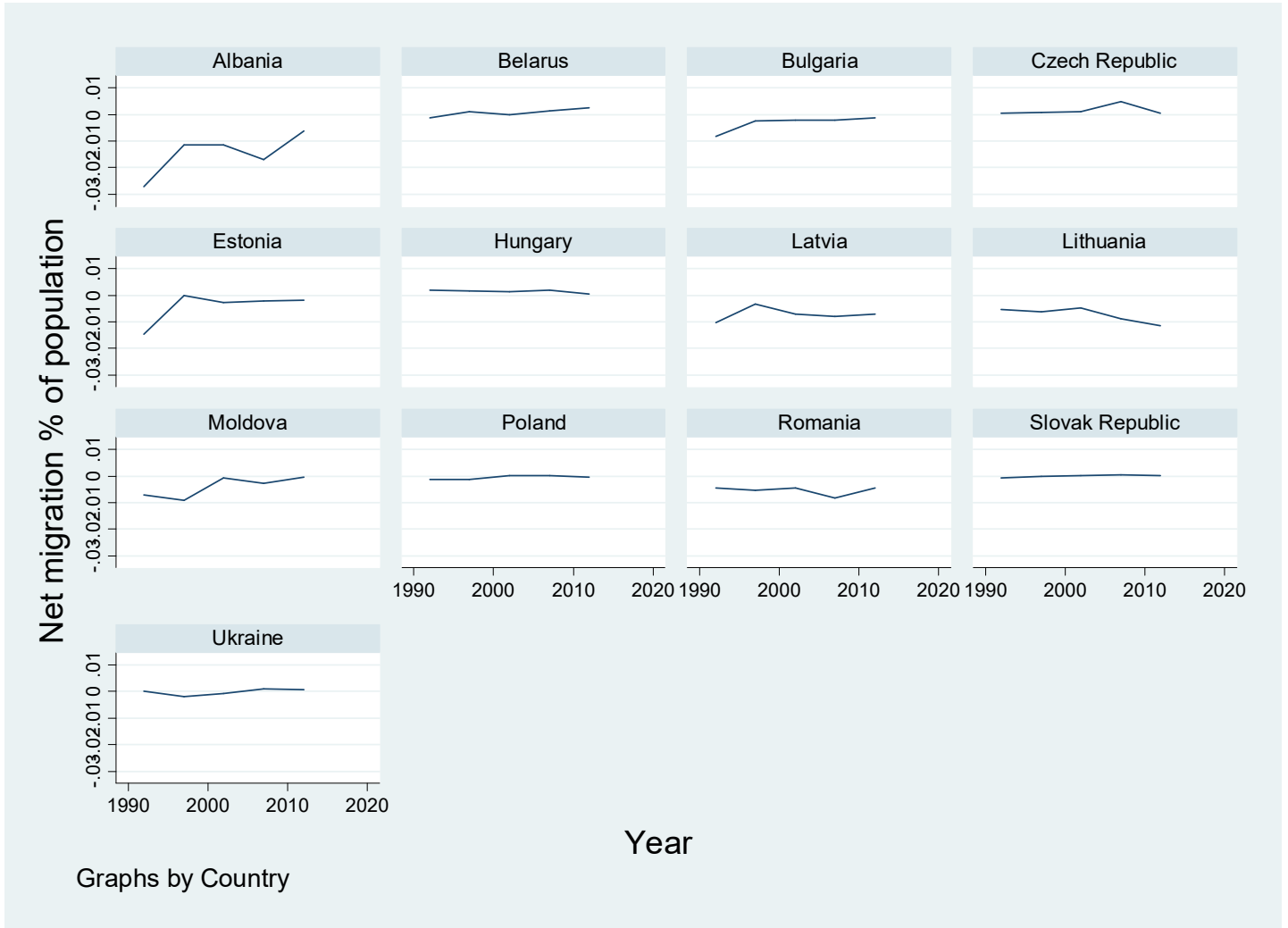
Appendix 10: Unemployment, % of labour force (modelled ILO estimate)



Appendix 11: GDP per capita PPP(current international \$)

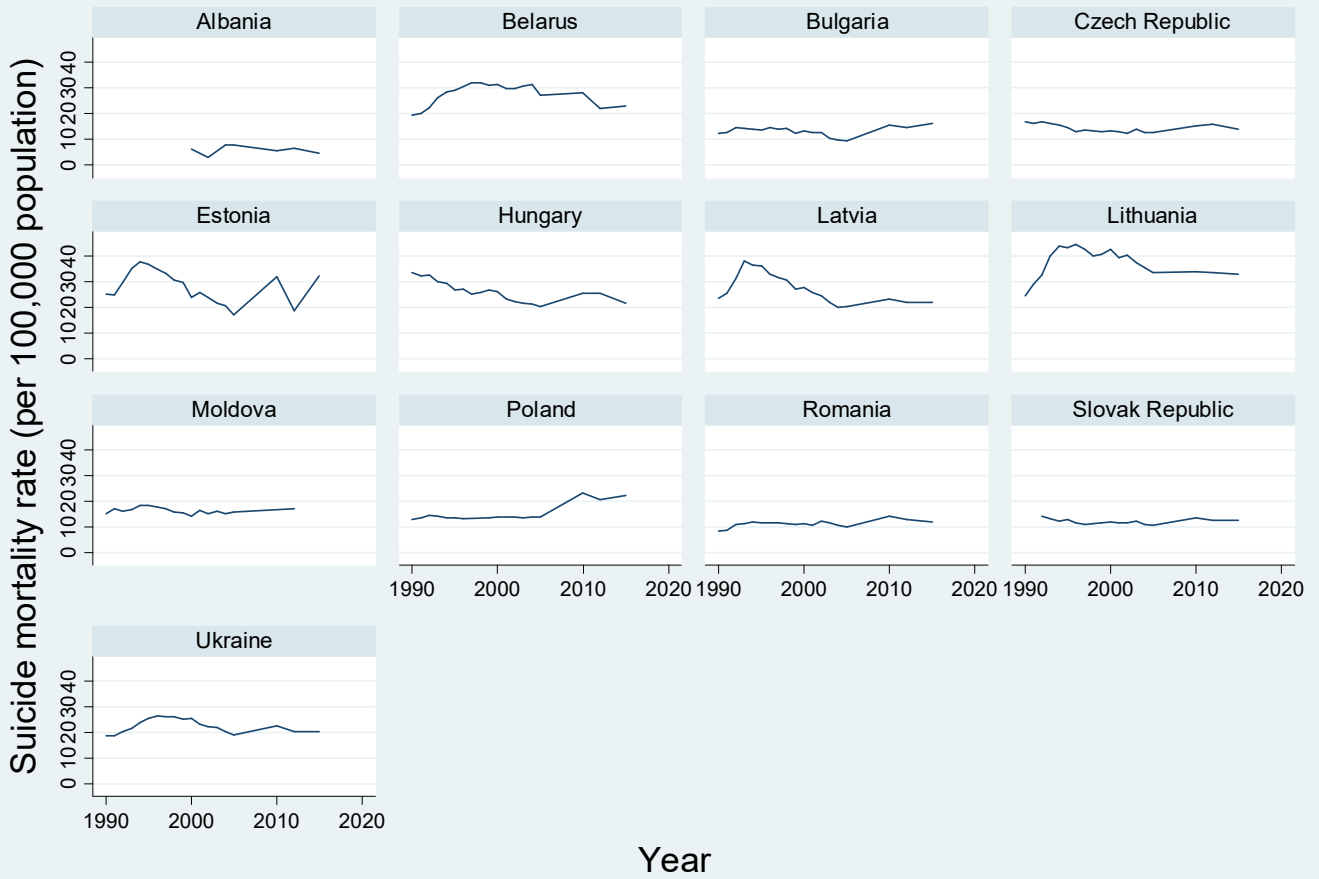


Appendix 12: Net Migration (% of population) – For clarity: the chart is negative at the bottom (indicating net emigration), and positive at the top (indicating net immigration) with 0 roughly in the middle.



Graphs by Country

Appendix 13: Suicide mortality rate (deaths per 100.000 population per year)



Graphs by Country

