Political Corruption and Public Expenditure Composition in Developing Countries: Causal Effect on Asylum Applications in OECD Countries

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Abstract

Generally, OECD countries follow the common responsibility of welcoming any asylum seekers who have already entered into the destination country's border and examining their case fairly on the ground of human rights issues i.e., political, religious, ethnic, racial discrimination or limiting freedom of expression. Due to insecure livelihoods, a large number of unskilled labors from the countries those didn't face any major civil war or external evasion in the last two decades, are fleeing to developed countries by using illegal routes. The purpose of the study is to explore whether political corruption causes to happen distortions of public spending in developing countries and consequently stimulates asylum seeking trend in OECD countries. The study mainly executes 2SLS regression analysis by using panel data from 79 developing countries during the period of 2000 to 2019. It explores the effect of corruption on different public spending in developing countries and then how the number of asylum application in OECD countries is impacted by distorted public spending and prevailing corruption which is instrumented by financial irregularities against fair election. The study finds that public budget allocation for health and education expenditure is likely to be increased but allocation for defense expenditure is possibly to be decreased significantly with declining score of corruption. Also, asylum application from developing countries to OECD countries is likely to be negatively impacted by lower level of corruption, higher public spending devoted to health expenditure and freedom of expression. However, the interaction term of corruption and freedom of expression, is responsible for increasing asylum application by on average 0.36percentage point. This study suggests the policy makers and practitioners in formulating public policy to restrict future unexpected asylum-seeking trend through reduction of political corruption in the countries of origin based on the marginal analysis of the associated factors.

Key Words: Corruption, Public expenditures, Asylum application, Developing world

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Table of Contents

1.2 Objectives and research questions 3 1.3 Justification of the study 3 1.4 Section outlines 3 2. Literature Review 4 2.1 Cost of corruption 4 2.2 Corruption and public spending 4 2.3 Corruption and migration 5 2.4 Threat of asylum seeking 5 2.5 Literature gap 6 3. Materials and Methods 7 3.1 Theoretical discussion 7 3.2 Formulation of Hypothesis 7 3.3 Data 8 3.4 Description of the Variables 9 3.5 Empirical research design 11 3.6 Validity check 13 4.1 Descriptive Statistics 14 4.1 Description of the summary statistics 14 4.1 Description by region and type of the economy 15 4.3 Asylum application by region and type of the economy 17 5.1 Estimating first stage regression 20 5.2 Estimating the model for asylum application 23 5.4 Validity test for instruments 26 6. Conclusion 27 6. Conclusion and policy recommendations	1.1 Background of the study	1
1.3 Justification of the study 3 1.4 Section outlines 3 2. Literature Review 4 2.1 Cost of corruption 4 2.2 Corruption and public spending 4 2.3 Corruption and emigration 5 2.4 Threat of asylum seeking 5 2.5 Literature gap 6 3. Materials and Methods 7 3.1 Theoretical discussion 7 3.2 Formulation of Hypothesis 7 3.3 Data 8 3.4 Description of the Variables 9 3.5 Empirical research design 11 3.6 Validity check 13 4. Description of the summary statistics 14 4.1 Description of the summary statistics 14 4.1 Description of the summary statistics 14 4.2 Intensity of corruption by region and type of the economy 17 5. Results and Discussions 20 5.1 Estimating First stage regression 20 5.2 Estimating the model for asylum application 23 5.4 Validity test for instruments 26 6. Conclusion 27 6.1 Conclusion and policy recommendations	1.2 Objectives and research questions	3
1.4 Section outlines 3 2. Literature Review 4 2.1 Cost of corruption 4 2.2 Corruption and public spending 4 2.3 Corruption and emigration 5 2.4 Threat of asylum seeking 5 2.5 Literature gap 6 3. Materials and Methods 7 3.1 Theoretical discussion 7 3.2 Formulation of Hypothesis 7 3.3 Data 8 3.4 Description of the Variables 9 3.5 Empirical research design 11 3.6 Validity check 13 4.1 Description of the summary statistics 14 4.1 Description of the summary statistics 14 4.2 Intensity of corruption by region and type of the economy 15 4.3 Asylum application by region and type of the economy 17 5. Results and Discussions 20 5.1 Estimating First stage regression 20 5.2 Estimating the model for public expenditure shares 22 5.3 Estimating the model for asylum application 23 5.4 Validity test for instruments 26 6. Conclusion and policy recommendations 27	1.3 Justification of the study	3
2. Literature Review 4 2.1 Cost of corruption 4 2.2 Corruption and public spending 4 2.3 Corruption and emigration 5 2.4 Threat of asylum seeking 5 2.5 Literature gap 6 3. Materials and Methods 7 3.1 Theoretical discussion 7 3.2 Formulation of Hypothesis 7 3.3 Data 8 3.4 Description of the Variables 9 3.5 Empirical research design 11 3.6 Validity check 13 4.1 Description of the summary statistics 14 4.1 Description by region and type of the economy 15 4.3 Asylum application by region and type of the economy 15 5.1 Estimating first stage regression 20 5.2 Estimating the model for public expenditure shares 22 5.3 Estimating the model for asylum application 23 5.4 Validity test for instruments 26 6. Conclusion 27 6.1 Conclusion and policy recommendations 27 7.4 Propendix 29	1.4 Section outlines	3
2.1 Cost of corruption 4 2.2 Corruption and public spending 4 2.3 Corruption and emigration 5 2.4 Threat of asylum seeking 5 2.5 Literature gap 6 3. Materials and Methods 7 3.1 Theoretical discussion 7 3.2 Formulation of Hypothesis 7 3.3 Data 8 3.4 Description of the Variables 9 3.5 Empirical research design 11 3.6 Validity check 13 4.1 Description of the summary statistics 14 4.2 Intensity of corruption by region and type of the economy 15 4.3 Asylum application by region and type of the economy 17 5. Results and Discussions 20 5.1 Estimating the model for public expenditure shares 22 5.3 Estimating the model for asylum application 23 5.4 Validity test for instruments 26 6. Conclusion 27 6.1 Conclusion and policy recommendations 27 7.4 Popendix 29	2. Literature Review	4
2.2 Corruption and public spending 4 2.3 Corruption and emigration 5 2.4 Threat of asylum seeking 5 2.5 Literature gap 6 3. Materials and Methods 7 3.1 Theoretical discussion 7 3.2 Formulation of Hypothesis 7 3.3 Data 8 3.4 Description of the Variables 9 3.5 Empirical research design 11 3.6 Validity check 13 4.1 Description of the summary statistics 14 4.2 Intensity of corruption by region and type of the economy 15 4.3 Asylum application by region and type of the economy 17 5. Results and Discussions 20 5.1 Estimating the model for public expenditure shares 22 5.3 Estimating the model for asylum application 23 5.4 Validity test for instruments 26 6. Conclusion 27 6.1 Conclusion and policy recommendations 27 7 27 6.1 Conclusion and policy recommendations 27 7 3.2 39 8.3 31 9.4 4.1	2.1 Cost of corruption	4
2.3 Corruption and emigration 5 2.4 Threat of asylum seeking 5 2.5 Literature gap 6 3. Materials and Methods 7 3.1 Theoretical discussion 7 3.2 Formulation of Hypothesis 7 3.3 Data 8 3.4 Description of the Variables 9 3.5 Empirical research design 11 3.6 Validity check 13 4. Descriptive Statistics 14 4.1 Description of the summary statistics 14 4.2 Intensity of corruption by region and type of the economy 15 4.3 Asylum application by region and type of the economy 17 5. Results and Discussions 20 5.1 Estimating First stage regression 20 5.2 Estimating the model for asylum application 23 5.4 Validity test for instruments 26 6. Conclusion 27 6.1 Conclusion and policy recommendations 27 7.4 Proved 29 Appendix vi	2.2 Corruption and public spending	4
2.4 Threat of asylum seeking 5 2.5 Literature gap 6 3. Materials and Methods 7 3.1 Theoretical discussion 7 3.2 Formulation of Hypothesis 7 3.3 Data 8 3.4 Description of the Variables 9 3.5 Empirical research design 11 3.6 Validity check 13 4. Description of the summary statistics 14 4.1 Description of the summary statistics 14 4.2 Intensity of corruption by region and type of the economy 15 4.3 Asylum application by region and type of the economy 17 5. Results and Discussions 20 5.1 Estimating First stage regression 20 5.2 Estimating the model for asylum application 23 5.4 Validity test for instruments 26 6. Conclusion 27 6.1 Conclusion and policy recommendations 27 7.4 Papendix 7	2.3 Corruption and emigration	5
2.5 Literature gap 6 3. Materials and Methods 7 3.1 Theoretical discussion 7 3.1 Theoretical discussion 7 3.2 Formulation of Hypothesis 7 3.3 Data 8 3.4 Description of the Variables 9 3.5 Empirical research design 11 3.6 Validity check 13 4. Descriptive Statistics 14 4.1 Description of the summary statistics 14 4.2 Intensity of corruption by region and type of the economy 15 4.3 Asylum application by region and type of the economy 17 5. Results and Discussions 20 5.1 Estimating First stage regression 20 5.2 Estimating the model for public expenditure shares 22 5.3 Estimating the model for asylum application 23 5.4 Validity test for instruments 26 6. Conclusion 27 6.1 Conclusion and policy recommendations 27 References 29 Appendix vi	2.4 Threat of asylum seeking	5
3. Materials and Methods 7 3.1 Theoretical discussion 7 3.2 Formulation of Hypothesis 7 3.3 Data 8 3.4 Description of the Variables 9 3.5 Empirical research design 11 3.6 Validity check 13 4. Descriptive Statistics 14 4.1 Description of the summary statistics 14 4.2 Intensity of corruption by region and type of the economy 15 4.3 Asylum application by region and type of the economy 17 5. Results and Discussions 20 5.1 Estimating First stage regression 20 5.2 Estimating the model for public expenditure shares 22 5.3 Estimating the model for asylum application 23 5.4 Validity test for instruments 26 6. Conclusion 27 6.1 Conclusion and policy recommendations 27 8.1 Conclusion and policy recommendations 27 9.1 Papendix 9	2.5 Literature gap	6
3.1 Theoretical discussion 7 3.2 Formulation of Hypothesis 7 3.3 Data 8 3.4 Description of the Variables 9 3.5 Empirical research design 11 3.6 Validity check 13 4. Descriptive Statistics 14 4.1 Description of the summary statistics 14 4.2 Intensity of corruption by region and type of the economy 15 4.3 Asylum application by region and type of the economy 17 5. Results and Discussions 20 5.1 Estimating First stage regression 20 5.2 Estimating the model for public expenditure shares 22 5.3 Estimating the model for asylum application 23 5.4 Validity test for instruments 26 6. Conclusion 27 6.1 Conclusion and policy recommendations 27 References 29 Appendix vi	3. Materials and Methods	7
3.2 Formulation of Hypothesis 7 3.3 Data 8 3.4 Description of the Variables 9 3.5 Empirical research design 11 3.6 Validity check 13 4. Descriptive Statistics 14 4.1 Description of the summary statistics 14 4.2 Intensity of corruption by region and type of the economy 15 4.3 Asylum application by region and type of the economy 17 5. Results and Discussions 20 5.1 Estimating First stage regression 20 5.2 Estimating the model for public expenditure shares 22 5.3 Estimating the model for public expenditure shares 22 5.4 Validity test for instruments 26 6. Conclusion 27 6.1 Conclusion and policy recommendations 27 References 29 Appendix vi	3.1 Theoretical discussion	7
3.3 Data83.4 Description of the Variables93.5 Empirical research design113.6 Validity check134. Descriptive Statistics144.1 Description of the summary statistics144.2 Intensity of corruption by region and type of the economy154.3 Asylum application by region and type of the economy175. Results and Discussions205.1 Estimating First stage regression205.2 Estimating the model for public expenditure shares225.3 Estimating the model for asylum application235.4 Validity test for instruments266. Conclusion276.1 Conclusion and policy recommendations27References29Appendixvi	3.2 Formulation of Hypothesis	7
3.4 Description of the Variables 9 3.5 Empirical research design 11 3.6 Validity check 13 4. Descriptive Statistics 14 4.1 Description of the summary statistics 14 4.2 Intensity of corruption by region and type of the economy 15 4.3 Asylum application by region and type of the economy 17 5. Results and Discussions 20 5.1 Estimating First stage regression 20 5.2 Estimating the model for public expenditure shares 22 5.3 Estimating the model for asylum application 23 5.4 Validity test for instruments 26 6. Conclusion 27 6.1 Conclusion and policy recommendations 27 References 29 Appendix vi	3.3 Data	8
3.5 Empirical research design113.6 Validity check134. Descriptive Statistics144.1 Description of the summary statistics144.2 Intensity of corruption by region and type of the economy154.3 Asylum application by region and type of the economy175. Results and Discussions205.1 Estimating First stage regression205.2 Estimating the model for public expenditure shares225.3 Estimating the model for asylum application235.4 Validity test for instruments266. Conclusion276.1 Conclusion and policy recommendations27References29Appendixvi	3.4 Description of the Variables	9
3.6 Validity check134. Descriptive Statistics144.1 Description of the summary statistics144.2 Intensity of corruption by region and type of the economy154.3 Asylum application by region and type of the economy175. Results and Discussions205.1 Estimating First stage regression205.2 Estimating the model for public expenditure shares225.3 Estimating the model for asylum application235.4 Validity test for instruments266. Conclusion276.1 Conclusion and policy recommendations27References29Appendixvi	3.5 Empirical research design	11
4. Descriptive Statistics 14 4.1 Description of the summary statistics 14 4.2 Intensity of corruption by region and type of the economy 15 4.3 Asylum application by region and type of the economy 17 5. Results and Discussions 20 5.1 Estimating First stage regression 20 5.2 Estimating the model for public expenditure shares 22 5.3 Estimating the model for asylum application 23 5.4 Validity test for instruments 26 6. Conclusion 27 6.1 Conclusion and policy recommendations 27 References 29 Appendix vi	3.6 Validity check	13
4.1 Description of the summary statistics144.2 Intensity of corruption by region and type of the economy154.3 Asylum application by region and type of the economy175. Results and Discussions205.1 Estimating First stage regression205.2 Estimating the model for public expenditure shares225.3 Estimating the model for asylum application235.4 Validity test for instruments266. Conclusion276.1 Conclusion and policy recommendations27References29Appendixvi	4. Descriptive Statistics	14
4.2 Intensity of corruption by region and type of the economy154.3 Asylum application by region and type of the economy175. Results and Discussions205.1 Estimating First stage regression205.2 Estimating the model for public expenditure shares225.3 Estimating the model for asylum application235.4 Validity test for instruments266. Conclusion276.1 Conclusion and policy recommendations27References29Appendixvi	4.1 Description of the summary statistics	14
4.3 Asylum application by region and type of the economy175. Results and Discussions205.1 Estimating First stage regression205.2 Estimating the model for public expenditure shares225.3 Estimating the model for asylum application235.4 Validity test for instruments266. Conclusion276.1 Conclusion and policy recommendations27References29Appendixvi	4.2 Intensity of corruption by region and type of the economy	15
5. Results and Discussions205.1 Estimating First stage regression205.2 Estimating the model for public expenditure shares225.3 Estimating the model for asylum application235.4 Validity test for instruments266. Conclusion276.1 Conclusion and policy recommendations27References29Appendixvi	4.3 Asylum application by region and type of the economy	17
5.1 Estimating First stage regression205.2 Estimating the model for public expenditure shares225.3 Estimating the model for asylum application235.4 Validity test for instruments266. Conclusion276.1 Conclusion and policy recommendations27References29Appendixvi	5. Results and Discussions	20
5.2 Estimating the model for public expenditure shares225.3 Estimating the model for asylum application235.4 Validity test for instruments266. Conclusion276.1 Conclusion and policy recommendations27References29Appendixvi	5.1 Estimating First stage regression	20
5.3 Estimating the model for asylum application 23 5.4 Validity test for instruments 26 6. Conclusion 27 6.1 Conclusion and policy recommendations 27 References 29 Appendix vi	5.2 Estimating the model for public expenditure shares	22
5.4 Validity test for instruments 26 6. Conclusion 27 6.1 Conclusion and policy recommendations 27 References 29 Appendix vi	5 5 1 1	
6. Conclusion 27 6.1 Conclusion and policy recommendations 27 References 29 Appendix vi	5.3 Estimating the model for asylum application	23
6.1 Conclusion and policy recommendations 27 References 29 Appendix vi	5.3 Estimating the model for asylum application5.4 Validity test for instruments	23
References	 5.3 Estimating the model for asylum application 5.4 Validity test for instruments 6. Conclusion 	23 26 27
Appendixvi	 5.3 Estimating the model for asylum application 5.4 Validity test for instruments 6. Conclusion 6.1 Conclusion and policy recommendations 	23
	 5.3 Estimating the model for asylum application 5.4 Validity test for instruments 6. Conclusion 6.1 Conclusion and policy recommendations References 	23 26 27 27 27

List of Tables

Caption of the tables	Page no.
Table 1: Summary statistics of the important variables	14
Table 2: First stage regression results	21
Table 3: Regression result for public spending on corruption	23
Table 4: Factors determining asylum applications from country of origin	24
Table 5: Diagnostic tests	26

List of Figures

5	
Caption of the figures	Page no.
Figure 1: Distribution of corruption perception index	15
Figure 2: Intensity of corruption perception index by region	16
Figure 3: Intensity of corruption perception index by type of the economy	16
Figure 4: Distribution of asylum applications in OECD countries	17
Figure 5: Region wise distribution of asylum applications to OECD countries	18
Figure 6: Asylum applications to OECD countries from different economies	18
Figure 7: Relationship between corruption and share of different public spending	19
Figure 8: Diagram with the model coefficients	26

List of abbreviations and acronyms

=	Two Stage Least Square
=	Three Stage Least Square
=	Generalized Methods of Moments
=	Corruption Perception Index
=	Gross Domestic Product
=	The Organization for Economic Co-operation and Development
	European Union
=	The United Nations High Commissioner for Refugees
=	Varieties of Democracy
=	World Development Indicator
=	International Monetary Fund
=	The Government Finance Statistics Yearbook

1. Introduction

1.1 Background of the study

To settle in a secured environment with the amenities of better livelihood, and social security, every year thousands of people are trying to cross inside the border of developed countries. The skilled migrants can attain that target by enrolling in the schools of the destination country or being employed in an organization in the destination country. The motivation behind the migration aspiration is the pull factors i.e., better institution and handsome wage (Okey, 2016). However, the unskilled labors have the only way to go to the destination countries by using illegal routes and taking help of the smugglers, usually without any legal document. Push factor in their country of origin, i.e., corruption, unemployment and persecution compel them to take the risk of their lives. In March 2023 EU received 92,000 asylum application which is around 10% higher than that of March 2022.¹ The substantial influx of individuals seeking asylum throughout the past two decades has emerged as a significant concern within public policy especially concern arises on social security and number of crimes. As a result, advanced nations have been compelled to implement noteworthy alterations in their asylum policies and practices. There are two ways of seeking asylum, one is through full documentation through UNHCR that takes much time and another is through human smugglers that is risky but easier (Djajić, 2014). However, due to border control, this border crossing has become riskier and expensive. As an illustration, according to Van Hear (2010), the costs associated with reaching Canada, the UK, and Germany from Sri Lanka by utilizing human smugglers, were \$40,000, \$25,000, and \$20,000 respectively. Also, statistics show that, according to the United Nations agency, a total of 24,144 individuals have lost their lives or gone missing while attempting to cross the Mediterranean since 2014. The majority of these tragic deaths of 19,520 people, occurred in the central Mediterranean region, with many of the victims remaining unrecovered. In the last year the number of deaths in this route was 1,864 and this number is increasing over the period.²

Thus, the life of the unskilled labors and their future settlement issue goes under threat and side by side the destination countries face some security issues with those people. Once

¹ https://euaa.europa.eu/latest-asylum-trends-asylum

² https://www.courthousenews.com/forlorn-and-unnamed-refugee-graves-in-italy-evoke-tragedy-of-deadly-sea-crossings/

they can get the chance to stay in the camp of the destination country, they hide their main cause of crossing border, rather they make a new story of political religious or ethnic suppression that commensurate with the policy of the asylum approval. However, the true factor remains behind this perilous journey remains unearthed. Is the cause persecution in the country of origin or financial hurdle due to prevailing corruption, joblessness, inequality and limited chance of growing up as human capital? To explore the answer to those question is very important.

Due to political corruption and injustice, financial and human security of citizens are seriously hampered and inequality increases in the society. Pellegrini & Gerlagh (2004) estimated that an increase in corruption of one standard deviation is likely to cause 0.8 to 1.0 percentage point decline in growth of GDP. In corrupted economy where lies lack of transparency and accountability, the government choose to implement mega project for structural or physical development but not in quality development of the concerned sectors. Budgetary distortion and corruption in public procurement blockade the real development of welfare indicators and thus human capital formation shrinks as well as social inequality, deprivation, poverty, unemployment and consequently crime and violation increase in the society. The effect not only becomes limited within the boundary of the problem country rather for secured and better future, people try to emigrate the developed country in illegal way and try to be settled there. Hence, in recent years the tendency of asylum seeking in developed countries are increasing significantly.

There are many researches that shows that due to corruption and rent seeking attitude of political leaders and bureaucrats there occurs distortions in public spending (Delavallade, 2006; Malyniak and <u>Martyniuk</u>, 2019). Due to those effects, human capital formation is hindered and inequality in the society grows up. Cumulatively those causes deprivation among the young and the unskilled labors seek asylum. The individual aims to enhance their welfare by immigrating to an advanced country and securing employment in its labor market. According to Oxfam (2005), approximately 90% of asylum seekers who entered Europe did so through illegal means. If they can fortunately can reach to the destination country, possess the right to apply for asylum, and explore alternative avenues to obtain a residence permit and finally permanent residence status. So, if the true factors behind false reason-based asylum applications are revealed, it will make an astounding policy initiative to take alternative solutions.

1.2 Objectives and research questions

The purpose of the study is to explore whether political corruption causes to happen distortions in budgetary composition in developing countries and corruption together with distorted public expenditure stimulate asylum seeking trend in OECD countries. The research questions are as follows-

i) What are the effects of political corruption on budgetary composition in different sectors i.e., education, health, defence, social security budgets of developing countries?

ii) Is there any causal trend between corruption together with distortionary public expenditure shares in sectors related to human capital formation of developing world, on asylum seeking application in developed countries?

1.3 Justification of the study

The proposed topic of my thesis focuses to explore how political corruption causes to happen distortions in budgetary composition in developing countries. Then, it investigates causal impact of public expenditure and governance indicators on asylum seeking trend in OECD countries. This research might help the OECD countries to analyse the factors and trend of asylum-seeking application from developing to developed countries. Some works have tried to relation between political corruption and the composition of public spending in OECD countries (Cordis, 2014; Hessami, 2014; Delavallade, 2006) but there is hardly any work that deals that relationship in the context of the lower-middle income countries or investigated the causal impact of public expenditure and governance indicators on asylum seeking trend in developed countries. This study tries to figure those factors and will forecast future asylum-seeking trend by doing marginal analysis of those factor estimates.

1.4 Section outlines

The rest of the dissertation is structured as follows: Section 2 presents the review of literatures by articulating effect of corruption on public spending and migration issues. In Section 3, research design is set up by formulating theoretical discussion, related hypothesis and building empirical models. Section 4 and 5 describes the results and discussion of both descriptive and empirical analysis. Finally, Section 6 provides a concluding summary of the main findings and suggest policy recommendation. Side by side, it figures out the future research options by mentioning limitations of this study.

2. Literature Review

2.1 Cost of corruption

For developing countries, cumulative long-run effect of corruption has negative effect on financial development (Song, 2021; Alsagr and van Hemmen, 2022) and due to one standard deviation decrease in CPI, GDP per capita diminishes by on an average 17% (Gründler and Potrafke, 2019). Rent seeking attitude of the corrupt political leaders and bureaucrats helps in shrinking the real development of an economy. Benfratello et al. (2018) by using data from a large panel of countries empirically found that corruption increases public debt. Besides, corruption has negative consequence on earning tax revenue (Hillman, 2004). Prevailing high corruption in a country, refers to declining human capital formation; i.e., school enrollment decreases significantly (Duerrenberger and Warning, 2018), decreases the option of availing benefits in health and social security (Jofre-Bonet et al., 2023) and causes growing income inequality (Cooray and Schneider, 2016). Overall, corruption impedes the welfare impact of the economic development.

2.2 Corruption and public spending

Higher score of human development index means the country is more careful to ensure health and education facilities for its citizens. It indicates, with lower level of corruption, welfare of the society i.e., security of health and education benefits becomes more facilitated which is also found in other study (Morrone et al, 2009). Rent creation and rent extraction by the corrupt political leaders cause social cost and distort public spending. Research conducted by Niehaus and Sukhtankar (2013), find that in corrupt cultures, most of the public regulators have always a tendency to prioritize mega investment projects based on the level of bribes and embezzlement goes inside their shoes, rather than considering the efficiency of the project. Literature shows that in the purpose of seeking new rent, corruption deviates public spending to new mega projects from the operating activities and maintenance (Tanzi and Davoodi, 2001). In developing countries, instead of ensuring pleasant and rich primary education or investing in the laboratory of university the governments are mostly interested to make new buildings. According to the study done by Malyniak et al. (2019), it has been established that for every unit increase in corruption perceptions (indicating a decrease in corruption), there is a corresponding marginal increase in the efficiency of public spending by 0.931 units. Corruption has a detrimental effect on human capital investment, specifically in the area of education, and health but has a positive impact on military spending (Delavallade, 2006; Jajkowicz and

Drobiszová, 2015). Consequently, a high level of corruption leads to distortions in the allocation of expenditures in technical sectors those are important for human capital formation.

2.3 Corruption and emigration

Corruption acts as a push factor for out-migration by shrinking the outcome of education, and consequently human capital formation is disrupted, growth process is hindered unemployment and/or underemployment becomes severe, inequality spreads and welfare is affected (Dimant et al., 2013). In case of studying brain-drain effect of corruption, the empirical results indicate that as corruption increases the emigration rate of those with high levels of educational attainment also increases (Cooray and Schneider, 2016). In pushing and pulling migrants wage income is the most important factor, among the income components (Giang et al., 2020). In study findings, it is found that pervasive corruption in the country of origin, influences physicians from Africa (Okey, 2016) and skilled labors in Croatia (Kurecic et al., 2023) to emigrate for the above mentioned pulled factor.

Wei (2001) find that corruption diverts budget allocation from vital sectors like health and education. Further due to corruption culture, the cost of education and health service increases but the quality substantially reduces (Gupta et al., 2002). On the other hand, the sectors with higher levels of secrecy and lower transparency, such as defense, often receive a larger share of public funds in a corrupted economy. Corruption reduces resources for social welfare spending since it weakens the tax system by providing favors for tax evasion (Gupta et al. 2002). Conversely, a study by Dincer and Gunlap (2012) explores that, individuals from low-income groups, who have mostly limited educational attainment, higher burden of bribe payments as a proportion of their income mostly levied on them. So, the unskilled people find no hope without poverty and joblessness. Countries those are mostly known as the emigrant friendly, are adopting immigration policies that prioritize to attract individuals with higher levels of skills and expertise (Dreher et al., 2011; Bertoli and Bruker, 2011; Beine et al., 2011). So, the unskilled labors take the chance of undocumented migration through smugglers or by using illegal ways and making a new story supportive the favor for migration.

2.4 Threat of asylum seeking

The cost of asylum seeking is expensive due to undocumented transportation, job search cost and contract with human smugglers for a handsome amount (Beine et al., 2011). Besides, they have tension and uncertainty of being in the trap of human trafficking, death threat during

perilous journey and uncertainty whether the destination country send them back. On the other hand, after absorbing a certain number of unskilled labors in the job market, the destination country face crisis with the surplus people. It also imbalance the smoothness in the health and social security of the hosting countries (Boswell, 2003). Moreover, the unskilled labors might not obey all rules and regulations and the civilized institutions of the hosting countries face problems. Side by side number of crimes and security threats might increase in the destination country (Brochmann and Hammar, 2020).

2.5 Literature gap

Some studies investigated the effect of corruption on migration of the skilled labor or brain-drain (Docquier & Rapoport, 2012; Panagiotakopoulos, 2020). However, a very few studies are available dealing with the true factors behind asylum application; Hatton (2016) deals with optimal asylum policy, Djajić (2014) investigates behavioral aspects of asylum applicants in selecting destination countries. Also, some studies discuss with the sociological and human rights perspectives of asylum application.

However, to my best of knowledge, it is rarely found any study discussed the causal relationship between corruption, public spending distortion and asylum applications to developed countries from developing those didn't affected by any civil or foreign war. So, if the true cause of asylum-seeking trend from peaceful regions can be determined then a public policy can be taken by the world community to reduce unexpected influx of unskilled labor in OECD countries. Hence, based on the literature gap, this piece of public policy issue might be a good contribution to the existing literature.

3. Materials and Methods

3.1 Theoretical discussion

According to economic theory, public corruption generates from the discretionary power of public officials (Jain, 2001). Hessami (2014) formulated a two-stage rent seeking model that explains the mechanism- how political or bureaucratic corruption influence public spending distortion. In the first stage political rent seeking is influenced by the industries those try to seek rent through lobbying. In the second stage, bureaucratic discretion assigns a certain share of rent (Long and Vousden, 1987) for which the contest grows up. To seek political favors, companies have some social cost in the form of offering political contribution, direct cash or non-cash benefit, job opportunities for the political workers or any other direct or indirect rents to the regulator. Thus, if the firm spend x amount of money/ resources, then it has a social cost/lobbying cost of $(1 - \alpha)x$ where, αx amount goes to the pocket of the bureaucrats and political parties (Heaasmi, 2014). There is a political tradeoff between a firm and the regulator through procurement (Hillman, 2009) where the regulator will spend a certain amount of budget to procure goods and service from that firm and the firm wins in the contest by concealing corruption. For having discretion of budgeting allocation, the politicians play in the double role as rent seekers through rent extraction and rent settlers through rent creation. In one hand in a society where corruption is pervasive, allocation of budget in the non-technical sector increases. Conversely, if the allocated government budget for a certain industry or company decreases, chance of doing corruption also diminishes. Hence, in a corrupted economy, the public spending in a certain sector depends on the motive of bureaucratic/political rent extraction from that sector.

Thus, the whole process affects welfare of the society and hinders human capital formation. Though GDP and growth uprises but the consequence thwarts the real development and causes inequality and unemployment in the society. Consequently, the skilled labor or students migrate to the developed country through right channel but the marginalized people who are mostly non-skilled labor find no hope left, try to illegally move to the developed countries for their livelihoods and security of their future generations. Thus, day by day the flow of asylum applications is growing in the OECD countries.

3.2 Formulation of Hypothesis

This study deals with the following three hypotheses and try to figure out the answer by testing those, by executing different regression analyses. H_{01} : There is no statistically significant effect of political corruption on public spending in different sectors i.e, education, health, defense and social protection of countries of origin from asylum application.

 H_{02} : There is no statistically significant effect of political corruption existing in developing countries (country of origin) on number of asylum-seeking applications in the OECD countries (destination countries).

 H_{03} : There is no statistically significant effect of corruption associated with distorted share of education and health spending in developing countries (country of origin) on number of asylum-seeking applications in the OECD countries (destination countries).

3.3 Data

This study uses panel dataset of 79 countries those belongs to low-income, lowermiddle-income and upper-middle-income economies from the following regions: East Asia and Pacific, Europe and Central Asia, Latin America & the Caribbean, Middle East and North Africa, South Asia, and Sub-Saharan Africa (Table A1), categorized by World Development Indicators (WDI).³ Total of 1,580 observations between 2000 to 2019 were curated from different sources. This study didn't consider the countries those faced any type of devastating civil war or invasion by other foreign countries over the selected period of time. To avoid the pandemic period of Covid 19, we limited our observations up to the year 2019. However, due to omitted data for some variables, number of observation deviates in different regression results. Number of asylum applications from those 79 developing countries to 29 selected OECD countries where the flow of asylum application is high are compiled from UNHCR. Corruption Perception Index score is collected from Transparency International and public expenditure data is accumulated from Government Finance Statistics Yearbook of IMF. Election vote buying, election irregularities, freedom of expression index and public corruption index is extracted from V-Dem dataset. Besides, data on GDP per capita, tax-GDP ratio, debt-GDP ratio, unemployment rate, population density, urban population growth and others have been imported from World Development Indicators (WDI).

³ https://datatopics.worldbank.org/world-development-indicators/the-world-by-income-and-region.html

3.4 Description of the Variables

To explore our ultimate findings, the outcome variable is *number of asylum applications* in selected OECD countries, emigrated from the country of origin in a certain year. It is the logarithmic value of number of asylum applications. Number of asylum applications is calculated as total number of yearly asylum applications in selected 29 OECD countries emigrated from each of the 79 sample countries of origin. The dataset is compiled from asylum application data available in UNHCR.

Corruption Perception Index is the main explanatory variable, higher index value means the lower intensity of corruption. From 2000 to 2012 the index score was between 0-10 but afterwards it was calculated between 0-100. For our analysis, we have converted all values between 0-100 by multiplying the score up to 2012 by 10 and then its logarithmic value is used for the computation perspective. This data is imported from Transparency International and used in many similar researches (Delavallade, 2006; Hessami, 2014).

Among the other explanatory variable of interests are share of different public spending in total expenditure share of an economy in a certain year. This study considers share of public spending on education, health, defence and social protection. Education expenditure is measured as a percentage of total government expenditure. Share of health expenditure is estimated as a percentage of total government expenditure. It focuses on the relative shares of public spending in the specific sector. Similarly, each of the share of defence expenditure and share of social protection expenditure are measured as a percentage of total government expenditure. Those observations are available in Government Finance Statistics Yearbook of IMF. These variables are used by many studies (Gupta et al., 2002; Delavallade, 2006; Hessami, 2014).

The other following controls are used in this study are compiled from World Development Indicator and V-Dem data sources.

- a) GDP per capita is measured in current price (USD) (Hessami, 2014; Cordis, 2014)
- b) *Tax-GDP ratio* is tax revenue as percentage of GDP (Delavallade, 2006)
- c) *Central government debt*, total (% of GDP) (Delavallade, 2006)
- d) Population density (people per sq. km of land area) (Hessami, 2014)
- e) Urban population growth (annual %) (Gupta et al., 2001; Delavallade, 2006)
- f) Unemployment, total (% of total labor force) (Hessami, 2014)

- g) *Human development index (scale 0-1)*. The index is developed based on the people's status on health, education and life expectancy.
- h) *Political corruption index*, which is developed based on the question "How pervasive is political corruption?" The scale is measured between 0 and 1, from low to high.
- i) *Freedom of expression index*, which is developed based on the question "To what extent does government respect press and media freedom, the freedom of ordinary people to discuss political matters at home and in the public sphere, as well as the freedom of academic and cultural expression?" The scale is measured between 0 and 1, from low to high. (Delavallade, 2006)

3.4.1 Instrument Variables

Olken (2009) demonstrates that CPI score, due to being calculated based on perceptions, using corruption perceptions as a measure might yield misleading outcomes. Moreover, parameter heterogeneity issue might arise due to significant differences in political, economic, legal, and cultural institutions among countries. Another challenge is, if reliable instrumental variables (IV) for assessing corruption is not used, might make it difficult to address concerns related to endogeneity and reverse causality. Political corruption or rent seeking attitude of the members of incumbent political leaders start through their huge spending or promised political favour after winning in the purpose of vote buying and to manage mechanism of election irregularities. Since, the focus of the study is how financial hurdle created through budgetary distortion influence the citizens of developing country to seek asylum in the OECD countries. So, here the consideration is only those factors that motivate the political leaders to be financially corrupted. Hence, corruption is instrumented by the variables- election vote buying and election fairness.

Election vote buying is a variable generated by the question "In this national election, was there evidence of vote and/or turnout buying?" Vote and turnout buying means influencing the citizen's ballot casting decision in favor of that person or his party in exchange of distributing them money or gifts or commitment of illegal political favor after election. The response is categorized based on 0-4 scale, where 0 means widespread vote buying and 0 means no evidence of vote buying. So, higher the index value means lower the vote buying. This is a strong instrument widely used in literature (Cordis, 2014)

Election fairness is the variable generated from the question "In this national election, was there evidence of other *intentional* irregularities by incumbent and/or opposition parties, and/or vote fraud?". The irregularities include all those issues help spoiling the credibility of fair election i.e., use of double IDs, intentional lack of voting materials, ballot stuffing, misreporting of votes, and false collation of votes. However, it doesn't include, election violence or other sorts of issues related to election but whether the free voting is fair or not. The response is categorized based on 0 to 3, from no/low fair election to fair election. This variable is considered because if election result is mechanized in exchange of money, there doesn't exist any value of people's opinion and political corruption increases.

3.5 Empirical research design

To estimate effect of corruption on public spending, most of the studies uses 2SLS (Hessami, 2014; Cordis, 2014) or 3sls regression analysis (Delavallade, 2006). Those methods reduce simultaneity bias, such as reverse causality. To investigating the effects of corruption on the emigration rate of low, medium and high-skilled individuals at the country level, (Cooray and Schneider, 2016) used generalized method of moments (GMM).

This study has two parts. To explore how political corruption causes to happen distortions in budgetary composition in developing countries, 2SLS regression is used. In the first stage, *election vote buying* and *election fairness* are used as instrument of corruption.

$$Corruption_{it} = \alpha + \beta_1 elvotbuy_{it} + \beta_1 elfairness_{it} + T_i + C_t + \epsilon_{it} - \dots - (1)$$

In the second stage, this study tries to find out two causal effects. First one is how corruption impacts share of public expenditure in different sectors. To do that different expenditure shares are regressed on corruption (eq.2). Four individual IV regressions are executed for that purpose.

$$Expenditure_{it} = \alpha + \beta Corruption_{it} + \delta X_{it} + T_i + C_t + \epsilon_{it}$$

Expenditure means share of expenditure on a particular sector as percentage of total expenditure. Sectors of expenditure includes:

- i) Expenditure on education
- ii) Expenditure on health
- iii) Expenditure on defence, and
- iv) Expenditure on social protection

Here, X_{it} includes the tax-gdp ratio, government debt as a percentage of GDP, the log of real GDP per capita, population density, urban population growth and unemployment rate. T_i and C_t estimate time and country fixed effects.

To estimate the effect of political corruption associated with distorted share of public budget spending devoted to health, education and defense, on asylum seeking application, this study first uses with OLS regression model without considering any country or year fixed effect. Then, it executes panel fixed effect regression and finally, 2SLS instrumental variable regression analysis.

Assylum application_{it} = $\alpha + \beta Corruption_{it} + \gamma Expenditure_{it} + \delta X_{it} + \epsilon_{it}$ -----(3)

Here, X_{it} includes the tax-GDP ratio, government debt as a percentage of GDP, the log of real GDP per capita, population density, urban population growth, unemployment rate, freedom of expression, and interaction variable of corruption and freedom of expression.

However, the estimator $\hat{\beta}$ is possibly to have an asymptotic bias, even conditional upon baseline attributes. This bias might be generated from omitted variable. The ultimate effect is overestimation or underestimation (Schiffrin & Liss, 2017) of the estimators in model eq. 3. The potential scenario is, if someone's siblings who is a skilled labor living in a certain OECD country influence him who is an unskilled labor, to migrate there through legal channel, might create a negative bias in $\hat{\beta}$ whereas friends or relative of the same category pull someone create positive bias in $\hat{\beta}$.

So, to investigate causal impact of public expenditure on asylum seeking trend in OECD countries, panel fixed effect regression is used. In this case, asylum seeking application is regressed on estimated share of expenditure on different sectors.

Assylum application_{it} =
$$\alpha + \beta Corruption_{it} + \gamma Expenditure_{it} + \delta X_{it} + T_i + C_t + \epsilon_{it}$$
------(4)

Here, X_{it} includes the tax-GDP ratio, government debt as a percentage of GDP, the log of real GDP per capita, population density, urban population growth, unemployment rate, freedom of expression, and interaction variable of corruption and freedom of expression. T_i and C_t estimate time and country fixed effects.

And finally, for the same equation 4, a 2SLS instrumental variable regression analysis is executed where in the first stage corruption is instrumented by election vote buying and election fairness.

3.6 Validity check

By simplifying the econometric analysis, it becomes feasible to utilize an instrumental variable (IV) approach, which effectively addresses concerns related to endogeneity. Sargan test is executed to check validity of the instruments as strong instrument. If the test result doesn't significantly reject the null hypothesis, it refers that the used instruments are strong.

4. Descriptive Statistics

4.1 Description of the summary statistics

This study dealing with country level data of 79 developing countries. To understand the situation prevailing in those countries, it is important to look at the summary statistics showcased in Table1.

Table 1: Summary statistics of the important variables

	Mean	SD	Min	Max	Median	P95	Ν
asylum application	5723	9952	5.00	109786	1751	27260	1580
corruption perception index	31.46	9.31	4.00	71	30	49.00	1417
public sector corruption	0.65	0.20	0.03	0.98	0.68	0.92	1580
share of education expenditure	15.95	5.00	4.65	38.11	15.68	24.59	1200
share of health expenditure	8.59	4.61	0.63	33.10	8.04	16.52	1569
share of defence expenditure	9.54	23.27	0.77	581.65	6.38	17.42	1354
share of social protection spending	15.47	12.45	0.00	56.00	12.00	38.00	793
tax as a percentage of GDP	14.35	4.42	4.99	29.25	13.73	23.37	938
GDP per capita	2979	2967	110.46	15976	1820	9443	1567
debt as a percentage of GDP	51.21	48.21	3.22	658.22	40.59	121.60	1552
Gini inequality index	41.02	8.39	25.20	64.80	40.50	55.00	643
age dependency ratio	66.24	18.38	37.10	106.62	61.07	96.89	1580
life expectancy	66.82	7.56	41.96	79.48	68.59	76.72	1580
population density	111.96	153.12	1.58	1272	68.16	352.44	1580
urban Population Growth	2.53	1.62	-2.87	12.77	2.43	4.95	1580
human development index	0.61	0.13	0.26	0.85	0.64	0.80	1568
rate of unemployment	7.30	5.28	0.14	29.77	5.63	19.04	1580
vote buying index	-0.75	0.90	-3.01	1.94	-0.79	0.95	1492
election fairness	-0.57	1.06	-3.21	1.89	-0.50	1.04	1492
freedom of expression	0.59	0.26	0.01	0.98	0.66	0.91	1580

Source: Author's own creation

From the above table, we find that the mean value of asylum application from a certain economy is 5723. Though in some specific years for a certain country, the number was very low, but in recent years it is significantly increasing than the predictions of the OECD countries. Corruption perception index value ranges between 4 to 71 with a mean of 31. Higher CPI value refers to lower rate of corruption. So, among the cohorts, there exists high level of diversity among the countries; some belong to very high corrupted and some belong to very low corrupted economies. Mean value of the share of public expenditure on education, health, defense and social protection are approximately 15.95%, 8. 59%, 9.54%, and 15.57% with a standard deviation of 5, 4.61, 23.27 and 12.45 in a row. Though the mean value of tax-GDP ratio is 14.35, the minimum score is only 5. Gini index value shows that, the maximum value of 64 determines too high inequality prevails in that economy, and the average score is 41. Rate of unemployment score pertains between 0.14 to 29.77 with an average of 7.30. So, the unemployment scenario in developing countries is comparatively worse than the developed countries. And finally, the freedom of expression index shows that the average score is 0.59 whereas the minimum is only 0.01. In summary, the overall condition of the developing countries represents the scenario of prevailing more distortions and deprivation.

4.2 Intensity of corruption by region and type of the economy

To follow the distribution of corruption perception index, Figure 1 shows that, density curve is tilted to the right, so the mean is greater than the median, indicating that it is not normally distributed.



Figure 1: Distribution of corruption perception index

Source: Author's own creation, 2023



Figure 2: Intensity of corruption perception index by region



In developing world corruption is rampant and pervasive (Olken and Pande, 2012). Figure 2 shows a boxplot indicating the intensity of corruption in different region. It is found that among the selected countries, mean CPI is the highest in Middle East and North Africa followed by East Asia & Pacific and Latin American & Caribbean region. Surprisingly, the European countries those are the country of origin of asylum appliers, are more corrupt than all other region except South Asia and Sub-Saharan African countries. Eventually, some countries in South Asia have more CPI score meaning low level of corruption than those selected European countries.



Figure 3: Intensity of corruption perception index by type of the economy

In case of finding intensity of corruption perception index by type of the economy, Figure 3 demonstrates that upper-middle income economies have comparatively lower level of corruption than lower-middle income and lower income economies. So, it is likely to be inferred that, more developed countries contain lower level of corruption; the result is similar to the existing literature (Hope Sr., 2017).

4.3 Asylum application by region and type of the economy

To follow the distribution of asylum application, Figure 4 shows that, density curve is slightly tilted to the left, so the mean is lower than the median, indicating that it is not normally distributed. The number of countries of origin having more asylum applicant than mean is lower than the number of countries belonging in the left end of the mean value.



Figure 04: Distribution of asylum applications in OECD countries

Source: Author's own creation

Figure 5 shows a boxplot indicating the number of asylum application from different regions. It is found that the trend of asylum application in OECD countries is the highest from the South Asian region followed by the selected European countries. So, here, it is likely to be found that from the more corrupted country the trend of asylum application is higher. However, this consideration doesn't fit with the status of Sub-Saharan African countries. It might be most of the countries existing in Sub-Saharan African countries are in the lower-income group. Previous studies found that, trend of migration is higher from lower-middle income countries than from lower-income countries, because the least amount of capacity is needed for migration (Benonnier et al., 2019).



Figure 5: Region wise distribution of asylum applications to OECD countries

Source: Author's own creation

Boxplots showcasing in figure 6 shows that from the lower income countries the trend of asylum application is lower than the comparatively developed economies. Because, in the lower income countries, most of the people live in agrarian society and fall in poverty trap. They cannot even manage a minimum level of financial and human ability to move from their country to developed countries though they highly need alternative livelihood (Ibrahim and Mensah, 2022).

Figure 6: Asylum applications to OECD countries from different economies



types of the economy defined by the World Bank



Figure 07: Relationship between corruption and share of different public spending

Figure 7 comprises combinations of relationship between corruption and distribution of public spending shares in different sectors. This study finds positive relationship between lower level of corruption and each of the share of health, education and social protect expenditure to total share of public expenditure in a year. However, high score of CPI meaning lower level of corruption has inverse relationship with share of defense expenditure to total share of public expenditure. Thus, it helps to understand that with lower level of corruption, spending devoted to human capital formation gets more priority than spending in military sector. Similar result was found in study for OECD countries (Hessami, 2014), as well as in developing countries (Delavallade, 2006).

5. Results and Discussions

5.1 Estimating First stage regression

This study focuses to explore whether corruption induced blockades in human capital formation and consequent hurdles through unemployment induce asylum application from developing countries to OECD countries. To do so, it focuses mostly on the financial corruption and tries to ignore other types of corruption, i.e, violence, persecution, and judicial corruption. Financial corruption and rent seeking attitude start from spending more money during election through vote buying or mechanism through election irregularities. So, vote buying in election and other voting irregularities that makes the election free but not fare, are used as instrument to determine corruption.

In the first stage, log value of corruption perception index is regressed on the instruments, election vote buying, and election fairness. In our data higher value of CPI means lower level of corruption as well as election vote buying score is measured in a scale of 0 to 4 meaning highly prevailing vote buying to no vote buying. From the first stage regression showcased in Table 2, it is observed that political corruption is expected to be reduced by on an average 5 percent with declining election vote buying by 1 point. Similarly, with 1 point increase in election fairness, political corruption is likely to be decreased by on an average 8 percent. Both the statistics are significant at even 1% level of significance. By adding the controls, we find similar effects of the instruments on corruption. Also, the F statistics > 10, determines the fitness of the model. Through DAG analysis, no duality is found between corruption and the instruments as well as no direct significant correlation is observed between the instruments and our dependent variable of interest, number of asylum applications. Thus, like the study of (Cordis, 2014) in USA, those instruments are found to be strong instruments to determine financial corruption that instigates rent seeking attitude among politicians, executives and bureaucrats.

	Dependent variable:			
	Log (corruption	perception index)		
	(1)	(2)		
election vote buying	0.051^{***}	0.035^{***}		
	(0.009)	(0.010)		
election fairness	0.081^{***}	0.071^{***}		
	(0.008)	(0.014)		
Log (GDP per capita)		0.081^{***}		
		(0.011)		
Tax-GDP ratio		0.020^{***}		
		(0.002)		
Debt- GDP ratio		0.0001		
		(0.0003)		
Log (population density)		0.00004		
		(0.0001)		
urban population growth		0.028^{***}		
		(0.006)		
unemployment		0.046^{***}		
		(0.013)		
Freedom of expression		-0.068		
		(0.056)		
Constant	3.491***	2.499***		
	(0.010)	(0.109)		
Observations	1,357	859		
\mathbb{R}^2	0.151	0.297		
Adjusted R ²	0.150	0.289		
Residual Std. Error	0.273	0.245		
F Statistic	120.343***	39.828***		

Table 2: First stage regression results

Note: p<0.1; p<0.05; p<0.05; p<0.01. This is the first stage regression result. The dependent variable (instrumental variable) is log (corruption perception index) which is regressed on the instruments: election vote buying, and election fairness. Both 1 and 2 are OLS regressions, the difference is in the second one all controls are added.

5.2 Estimating the model for public expenditure shares

To explore answer for the first research question, how political corruption affect share of different public expenditures, this study uses IV regression analysis for each of the education, health, defense and social protection expenditure on log (corruption perception index). From the result showcased in Table 3, it is found that for the observations, 1 percent decline in corruption is likely to increase the share of public spending devoted to education by on an average 12 percentage point and health by approximately 27 percentage point but reduces share of public spending on defense by on an average 30 percentage point. All the results are significant at even 1 percent level of significance. The results are found similar to other studies (Delavallade, 2006, Cordis, 2014). Higher GDP per capita negatively affect share of public spending on education and health sector but positively impacts social protection expenditure. The reason is likely, increasing GDP per capita in developing countries means prevailing huge inequality and distribution of money in the hand of few people (Dabla-Norris, 2015) as well as sometimes GDP per capita is a manipulated figure rather than production (Martinez, 2018). For example, in corrupted developing world, after any natural disaster in the name of social protection and recoveries huge amount of money are allocated to take mega projects those are not necessary and resilient, increases GDP but reduces share of expenditure on health and education (Healy and Malhotra, 2009).

At the same direction, increasing tax GDP ratio has negative impact on public spending share for health and education but positive effect on defense expenditure. In corrupted countries, government feel secured by keeping the military happy rather than by the power of people, because they can use military forces to manipulate voting result. Population density and urban population growth have also negative impact on public spending in education, health and social protection, because government tries to take attention by ensuring other infrastructures and mega projects to build road and flyovers, to manage water and electricity for the growing people and urban inhabitants. It is found that growing unemployment reduces share of public spending on health and education. The reason might be, government tries to give incentives for industrialization to create job opportunities and control instability.

	Dependent variable: Share of expenditure to total expenditure					
-	Education (1)	Health (2)	Defence (3)	Social protection (4)		
Log (CPI)	12.739***	27.188***	-30.279***	-6.018		
	(2.669)	(3.312)	(8.779)	(7.803)		
Log (GDP per capita)	-1.581***	-0.847*	0.938	3.094***		
	(0.412)	(0.470)	(1.169)	(1.015)		
tax-GDP ratio	-0.222***	-0.480***	0.621^{***}	0.008		
	(0.075)	(0.091)	(0.228)	(0.198)		
debt GDP ratio	-0.023***	-0.012	-0.005	-0.009		
	(0.008)	(0.008)	(0.019)	(0.013)		
Log (population density)	-0.599**	-1.543***	0.957	-2.282***		
	(0.237)	(0.306)	(0.761)	(0.538)		
Urban population growth	0.063	-0.791***	-0.410	-2.840***		
	(0.173)	(0.200)	(0.495)	(0.335)		
Unemployment rate	-1.752***	-1.732***	2.232^{**}	0.926		
	(0.309)	(0.397)	(0.992)	(0.736)		
Constant	-6.046	-59.197***	90.602***	28.401^{*}		
	(5.427)	(6.972)	(18.726)	(16.209)		
Observations	744	857	818	533		
\mathbf{R}^2	-0.097	-0.973	-0.080	0.344		
Adjusted R ²	-0.108	-0.989	-0.089	0.335		
Residual Std. Error	5.361	7.128	17.013	10.126		

Table 3: Regression result for public spending on corruption

Note: *p<0.1; **p<0.05; ***p<0.01. Here, Log (CPI) is instrumented by election vote buying and election fairness. Each of the dependent variable represents the share of public expenditure on health to total government expenditure. Similarly, for health, defence and social protection. The explanatory variable of interest is Log (CPI). Higher CPI means lower level of corruption.

5.3 Estimating the model for asylum application

To find answer to the second research question, how corruption and distorted public spending on health and education affects asylum seeking from developing world to OECD countries. Corruption erodes trust on government and undermines credibility in public spending.⁴

⁴ https://blogs.worldbank.org/governance/how-make-progress-fight-against-corruption

	Dependent variable. log (asylum application)			
	OLS (1)	instrumental variable (2)	panel fixed (3)	
Log (cpi)	-0.702^{*}	-8.886*	-0.630*	
	(0.415)	(4.756)	(0.337)	
tax GDP ratio	-0.073***	-0.049**	0.036^{***}	
	(0.014)	(0.023)	(0.013)	
Log (GDP per capita)	0.231***	0.221**	0.150	
	(0.073)	(0.097)	(0.136)	
debt GDP ratio	-0.001	0.002	0.005^{**}	
	(0.002)	(0.003)	(0.002)	
Log (population density)	0.348***	0.432^{***}	1.745^{***}	
	(0.049)	(0.082)	(0.464)	
urban population growth	-0.275***	-0.335***	-0.019	
	(0.038)	(0.049)	(0.043)	
unemployment rate	0.455^{***}	0.542^{***}	0.307^{***}	
	(0.077)	(0.103)	(0.108)	
education expenditure	-0.004	0.020	-0.014	
	(0.011)	(0.016)	(0.009)	
health expenditure	-0.081***	-0.088***	0.046^{**}	
	(0.013)	(0.016)	(0.019)	
defence expenditure	-0.004	-0.018^{*}	-0.005	
	(0.003)	(0.009)	(0.006)	
freedom of expression	-2.080***	-13.272**	-1.393**	
	(0.745)	(6.687)	(0.650)	
corruption imes freedom of expression	0.026	0.364*	0.017	
	(0.020)	(0.196)	(0.016)	
Constant	9.307***	36.540**		
	(1.589)	(15.742)		
Observations	738	711	738	
R ²	0.287	-0.100	0.072	
Adjusted R ²	0.275	-0.119	-0.055	
Residual Std. Error	1.380	1.693		
F Statistic	24.290^{***}		4.192^{***}	

 Table 4: Factors determining asylum applications from country of origin

 Dependent variable: log (asylum application)

Note : *p<0.1; **p<0.05; ***p<0.01. In the first model no country or year fixed effect was considered but is considered in the 2nd and third models. The outcome variable is *Log (asylum application)*. Explanatory variables of interest are *log (CPI)* (which is instrumented by election vote buying, and election fairness in the IV regression result), share of education, and health expenditure and the interaction variable (*corruption* × *freedom of expression*).

Table 4 showcases OLS, IV and Panel fixed regressions to find the effect of corruption on asylum applications from developing countries to OECD countries. It is found that, for OLS and panel fixed regression, if CPI score reduces by 1 percent in the country of origin, asylum seeking applications in OECD countries declines by on an average almost 0.7 and 0.6 percentage point respectively. However, through instrumenting corruption by financial issues, it is observed that 1 percent reduction of corruption is likely to decrease asylum application from those developing country of origin by 8.88 percentage point. The coefficients are significant at even 1% level of significance. The results give an inference that reduction of financial corruption is highly responsible for the growing asylum application in developed world. It is found that public spending in both the health and defense sector is likely to reduce asylum application but the effect of health expenditure share impacts highly than the latter. If share of health expenditure increases by 1 % asylum application is likely to be reduced by 8 percentage point and the coefficient is significant at even 1% level of significance.

Surprisingly, no significant effect of education is found here, meaning people face more struggle with their health issue rather than the education. However, education expenditure might have long-run consequence. Asylum application is possibly to be reduced by 0.54 percentage point with 1 percent increase in the rate of unemployment. However, urban population growth might decline the trend of asylum application. Because through urbanization citizens of the country of origin might enjoy modern amenities in their own country. Freedom of expression helps to reduce asylum application from country of origin very significantly but if corruption is associated with freedom of expression, people become motivated to seek asylum in OECD countries. It is calculated that 1 unit increase in the interaction variable of corruption and freedom of expression increase the asylum application by 36 percentage point.

Overall, declining corruption, rate of unemployment rate, and increasing health expenditure in country of origin might positively and significantly impacts to reduce asylum seeking in OECD countries. Freedom of expression is very important but when high corruption prevails, freedom of expression does not make any incentive to reduce asylum seeking trend. That means, financial issue impacts more than the persecution issue in reasoning asylum application.



Figure 8: Diagram with the model coefficients

Figure 8 shows that the results of the coefficients are more or less similar except huge difference in *log (CPI)* and *freedom of expression* variables. Unlike OLS and Panel linear regression, result of IV regression gives large values though the vector is same for all those models. It might be, when instrumenting corruption from the point of financial issue, it really determines the true cause of corruption.

5.4 valially lest for instruments	S'
Table 5: Diagnostic tests:	
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	df1	df2	statistic	p-value
Weak instruments	2	697	2.362	0.0950
Wu-Hausman	1	697	1 697	0.0108*
Sargan	1	NA	0.016	0.9009

Note: *p<0.1; **p<0.05; ***p<0.01

Residual standard error: 1.693 on 698 degrees of freedom Multiple R-Squared: -0.1004 Adjusted R-squared: -0.1193 Wald test: 16.77 on 12 and 698 DF, p-value: < 2.2e-16

The Sargan test provides the evidence of whether the instruments are strong, by testing the hypothesis that the instrumental variables are uncorrelated to a set of residuals. The instruments are valid if the null hypothesis is not rejected statistically. Since, we find that the null hypothesis is not rejected, the instruments used in this study are considered as valid.

6. Conclusion

6.1 Conclusion and policy recommendations

This research contributes to the existing literature by giving evidence that political corruption that begins from election mechanism, has great impact on public spending distortions in developing countries. Empirical results based on the panel dataset from 79 developing countries over the period from 2000 till the Covid 19 pandemic in 2020, this study finds consistent results as predicted. From the theoretical discussions, it is determined that as corruption increases, the share of rent creating public expenditures also increases. Like other studies (Mauro 1998, Gupta et al., 2001, Delavallade, 2006), this study also finds that declining corruption is likely to increase public expenditure share in health and education but reduces allotment in defense expenditure.

Besides, this research explores new evidence on how the distorted public expenditure along with corruption affects asylum application from developing world to developed countries. Results demonstrate that, with lower level of political corruption, the trend of unskilled and undocumented labors fleeing from country of origin and seeking asylum in OECD countries is likely to be reduced significantly. Moreover, when share of health expenditure increases, people are less likely to seek asylum. Increasing unemployment rate in country of origin possibly influence the unskilled labors for taking risk to search shelter in developed countries for better livelihood. And finally, freedom of expression might significantly reduce the asylum application trend from country of origin but if corruption is associated with freedom of expression, it abolishes the welfare and people become motivated to head to developed countries by using illegal routes. The region which is more corrupted usually belongs to lower and lower middle-income economy and large number of people from those regions try to seek asylum in OECD countries. Though the motivation of the developed world is to give security of people from different parts of the world due to humanitarian and human rights factors, but todays motivation for asylum application are more economic rather than human rights issue.

Asylum seekers during their perilous journey to reach in advanced countries, face risk of life, huge financial cost, risk of being smuggled and uncertainty of getting residence permit eventually they can cross the border of the destination country. On the other hand, high influx of unskilled labor and application for asylum in OECD countries in recent years, are causing threat to the destination county's social security, culture, institutions and crime rates (Zimmermann et al., 2007). In these circumstances, asylum seekers whose actual ground of asylum application is financial hurdles not human rights issue/persecution, can be stopped by taking necessary steps by correcting the push factors in the country of origin. This study suggests, reducing political corruption might be one of the major initiatives to upgrade the level of human development index in the country of origin and to discourage asylum seeking trend from those countries. The policy makers of the developing countries should think of ensuring efficient allocation of budget in education and health sectors to counterbalance the distortion of public spending. If the leaders of OECD countries can take necessary steps i.e., imposing sanctions on the corrupt political leaders and helping to arrange free and fair election in the countries of origin, this unexpected asylum-seeking trend might reduce significantly. Along with the existing literatures, this study might help in the public policy decision on asylum application issue.

6.1 Further Research Options

This study has limitation to differentiate between the asylum applicants who are skilled labor and not-skilled labor, because a few people whose real problem is persecution by the dominant group in the country of origin not financial hurdles also take shelters in OECD countries. Another limitation is, this study could not control in case the asylum application is motivated due to having their relatives in those advanced countries rather than any other economic or persecution issue. The future study might be on determining the optimal asylum application based on surveying market demand of the destination country's job market and labor force supply.

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Appendix

Region-wise distribution	Low-income economies and Lower-	Upper-middle-income economies
of countries	middle-income economies	(Non-poor countries)
	(Poor countries)	Total $= 29$ countries
	Total $(15 + 35) = 50$ countries	
Sub-Saharan Africa	(26 countries):	(01 country):
(26+01= 27 countries)	Angola, Benin, Burundi, Burkina Faso,	South Africa
	Cameroon, Comoros, Republic of	
	Congo, Cote d'Ivoire, Democratic	
	republic of Congo, Eritrea, Ethiopia, The	
	Gambia, Ghana, Guinea, Guinea-Bissau,	
	Kenya, Liberia, Madagascar, Malawi,	
	Mauritania, Morocco, Niger, Rwanda,	
	Senegal, Togo, Zambia, Zimbabwe	
Latin America and the	(05 countries):	(12 countries):
Caribbean	Bolivia, Ecuador, El Salvador, Honduras,	Argentina, Brazil, Colombia, Costa
(05+12=17 countries)	Nicaragua,	Rica, Cuba, Dominican Republic,
		Guatemala, Guyana, Jamaica,
		Mexico, Peru, Venezuela
Europe and Central Asia	(3 countries):	(12 countries):
(03+12=15 countries)	Kyrgyz Republic, Tajikistan, Uzbekistan	Albania, Armenia, Azerbaijan,
		Belarus, Bulgaria, Georgia,
		Kazakhstan, Moldova, Russian
		Federation, Serbia, Turkiye,
		Turkmenistan
East Asia and Pacific	(6 countries):	(3 countries):
(06+03=09 countries)	Cambodia, Guinea, Indonesia, Mongolia,	China, Malaysia, Thailand
	Philippines, Viet Nam	
Middle East and North	(05 countries):	(1 country):
Africa	Algeria, Djibouti, Egypt, Iran, Tunisia	Jordan
(05+01=06 countries)		
South Asia	(05 countries):	
(05 +00=05 countries)	Bangladesh, India, Sri Lanka, Nepal,	
	Pakistan	

Table A1: Region and income wise distribution of sample countries

Note: The country names written in *italic* format, belong to low-income economies

Name of the Continent	List of Countries		
Europe (24)	Austria	Belgium	Czech Republic
	Denmark	Estonia	Finland
	France	Germany	Greece
	Hungary	Iceland	Ireland
	Italy	Lithuania	Luxembourg
	Netherlands	Norway	Poland
	Portugal	Slovenia	Spain
	Sweden	Switzerland	United Kingdom
North America (2)	Canada	United States	
Asia (1)	Japan		
Oceania (2)	Australia	New Zealand	

Table A2: List of OECD countries (29 countries)

Table A3: Correlation analysis

Log (asylum apply)	Log (cpi)	Log (gdppc)	tax-gdp	debt-gdp	Log (pop ⁿ density)	urban pop ⁿ growth	unem- ployment	education	health	defense	Freedom of exp.	Corrupt X free exp.
	-0.10*	0.09*	-0.11**	-0.04	0.21***	-0.25***	0.12***	-0.20***	-0.23***	0.03	-0.29***	-0.27***
-0.10*		0.35***	0.35***	0.07	0.10^{*}	-0.11**	0.15***	0.09^{*}	0.35***	-0.15***	0.14***	0.60^{***}
0.09^*	0.35***		0.29***	-0.12**	-0.27***	-0.46***	0.25***	-0.16***	0.39***	-0.04	0.00	0.21***
-0.11**	0.35***	0.29***		0.13***	-0.09*	-0.35***	0.34***	-0.11**	0.15***	0.02	0.22***	0.36***
-0.04	0.07	-0.12**	0.13***		0.06	0.04	0.19***	-0.08^{*}	-0.05	-0.02	0.09^{*}	0.09^{*}
0.21***	0.10^{*}	-0.27***	-0.09*	0.06		0.06	-0.14***	0.06	-0.08*	-0.05	-0.03	0.01
-0.25***	-0.11**	-0.46***	-0.35***	0.04	0.06		-0.34***	0.20***	-0.21***	-0.06	-0.10**	-0.13***
0.12***	0.15***	0.25***	0.34***	0.19***	-0.14***	-0.34***		-0.27***	0.05	0.05	0.04	0.14***
-0.20***	0.09^{*}	-0.16***	-0.11**	-0.08*	0.06	0.20***	-0.27***		0.25***	0.03	0.11**	0.14***
-0.23***	0.35***	0.39***	0.15***	-0.05	-0.08*	-0.21***	0.05	0.25***		-0.06	0.32***	0.45***
0.03	.ag0.15***	-0.04	0.02	-0.02	-0.05	-0.06	0.05	0.03	-0.06		-0.26***	-0.23***
-0.29***	909.14***	0.00	0.22***	0.09^{*}	-0.03	-0.10**	0.04	0.11**	0.32***	-0.26***		0.84***
-0.27***	.60 ^{***}	0.21***	0.36***	0.09^{*}	0.01	-0.13***	0.14***	0.14***	0.45***	-0.23***	0.84***	
	Log (asylum apply) -0.10* 0.09* -0.11** -0.04 0.21*** -0.25*** 0.12*** -0.23*** -0.23*** 0.03 -0.29*** -0.27***	Log (asylum apply)Log (cpi) -0.10^* -0.10^* -0.10^* 0.35^{***} 0.09^* 0.35^{***} -0.11^{**} 0.35^{***} -0.04 0.07 0.21^{***} 0.10^* -0.25^{***} -0.11^{**} 0.12^{***} 0.15^{***} -0.20^{***} 0.09^* -0.23^{***} 0.35^{***} 0.03 -0.29^{***} -0.27^{***} -0.60^{***}	Log (asylum apply)Log (cpi)Log (gdppc) -0.10^* 0.09^* -0.10^* 0.35^{***} 0.09^* 0.35^{***} 0.09^* 0.35^{***} -0.11^{**} 0.35^{***} -0.11^{**} 0.35^{***} -0.04 0.07 -0.25^{***} -0.11^{**} 0.12^{***} 0.10^* -0.25^{***} 0.15^{***} 0.21^{***} 0.09^* -0.25^{***} 0.09^* -0.23^{***} 0.35^{***} 0.03 -0.25^{***} 0.03 -0.15^{***} 0.03 -0.04 0.03 -0.04 0.03 -0.29^{***} 0.03 -0.21^{***}	Log (asylum apply)Log (cpi)Log (gdppc)tax-gdp -0.10^* 0.09^* -0.11^{**} -0.10^* 0.35^{***} 0.35^{***} 0.09^* 0.35^{***} 0.29^{***} -0.11^{**} 0.35^{***} 0.29^{***} -0.11^{**} 0.35^{***} 0.29^{***} -0.11^{**} 0.35^{***} 0.29^{***} -0.04 0.07 -0.12^{**} 0.13^{***} 0.21^{***} 0.10^* -0.27^{***} -0.09^* 0.12^{***} 0.15^{***} 0.25^{***} 0.34^{***} -0.20^{***} 0.09^* -0.16^{***} -0.11^{**} 0.03 -0.35^{***} 0.39^{***} 0.15^{***} 0.03 -0.15^{***} 0.00 0.22^{***} 0.03 -0.29^{***} 0.00 0.22^{***} -0.27^{***} 0.60^{***} 0.21^{***} 0.36^{***}	$Log (asylum apply)$ $Log (cpi)$ $Log (gdppc)$ $tax-gdp$ $debt-gdp$ -0.10^* 0.09^* -0.11^{**} -0.04 -0.10^* 0.35^{***} 0.35^{***} 0.35^{***} 0.07 0.09^* 0.35^{***} 0.29^{***} -0.12^{**} -0.11^{**} 0.35^{***} 0.29^{***} -0.12^{**} -0.11^{**} 0.35^{***} 0.29^{***} 0.13^{***} -0.04 0.07 -0.12^{**} 0.13^{***} -0.04 0.07 -0.12^{**} 0.13^{***} -0.21^{***} 0.10^* -0.27^{***} 0.06 -0.25^{***} -0.11^{**} -0.46^{***} -0.35^{***} 0.04 0.12^{***} 0.15^{***} 0.25^{***} 0.34^{***} 0.19^{***} -0.20^{***} 0.09^* -0.16^{***} -0.11^{**} -0.08^* -0.23^{***} 0.35^{***} 0.39^{***} 0.15^{***} -0.02 -0.29^{***} 0.35^{***} -0.04 0.02 -0.02 -0.29^{***} 0.06^{***} 0.21^{***} 0.36^{***} 0.09^*	$Log (asylum apply)$ $Log (cpi)$ $Log (gdppc)$ $lax-gdp$ $debt-gdp$ $Log (pop^n density)$ -0.10° 0.09° $-0.11^{\circ\circ}$ -0.04 $0.21^{\circ\circ\circ\circ}$ -0.10° $0.35^{\circ\circ\circ\circ}$ $0.35^{\circ\circ\circ\circ}$ 0.07 0.10° -0.10° $0.35^{\circ\circ\circ\circ}$ $0.29^{\circ\circ\circ\circ}$ $-0.12^{\circ\circ\circ}$ $-0.27^{\circ\circ\circ\circ}$ -0.09° $0.35^{\circ\circ\circ\circ}$ $0.29^{\circ\circ\circ\circ}$ $-0.13^{\circ\circ\circ\circ}$ -0.09° $-0.11^{\circ\circ\circ}$ $0.35^{\circ\circ\circ\circ}$ $0.13^{\circ\circ\circ\circ}$ 0.06 $0.21^{\circ\circ\circ\circ}$ $-0.21^{\circ\circ\circ\circ}$ 0.10° $-0.27^{\circ\circ\circ\circ}$ 0.06 $0.12^{\circ\circ\circ\circ}$ $-0.25^{\circ\circ\circ\circ}$ $0.10^{\circ\circ\circ}$ $-0.46^{\circ\circ\circ\circ}$ $0.09^{\circ\circ}$ 0.06 $0.12^{\circ\circ\circ\circ}$ $0.11^{\circ\circ\circ\circ}$ $0.25^{\circ\circ\circ\circ}$ $0.34^{\circ\circ\circ\circ}$ 0.04 0.06 $0.12^{\circ\circ\circ\circ}$ $0.09^{\circ\circ\circ}$ $0.16^{\circ\circ\circ\circ}$ $0.15^{\circ\circ\circ\circ}$ $0.08^{\circ\circ\circ\circ}$ 0.06 $0.22^{\circ\circ\circ\circ\circ}$ $0.09^{\circ\circ\circ\circ}$ $0.15^{\circ\circ\circ\circ\circ\circ}$ 0.01°	$Log (asylum apply)$ $Log (gdpc)$ $Log (gdpc)$ $tax-gdp$ $debt-gdp$ $Log (pop^n density)$ $urban pop^n growth$ -0.10^* 0.09^* -0.11^{**} -0.04 0.21^{***} -0.25^{***} -0.10^* 0.35^{***} 0.35^{***} 0.07 0.10^* -0.11^{**} 0.09^* 0.35^{***} 0.29^{***} -0.12^{**} -0.27^{***} -0.46^{***} -0.11^{**} 0.35^{***} 0.29^{***} -0.12^{**} -0.27^{***} -0.46^{***} -0.11^{**} 0.35^{***} 0.29^{***} -0.13^{***} -0.09^* -0.35^{***} -0.04 0.07 -0.12^{**} 0.13^{***} -0.06^* 0.06 0.21^{***} 0.10^* -0.27^{***} 0.06 0.06 0.22^{***} 0.11^{**} -0.35^{***} 0.04 0.06 0.22^{***} 0.15^{***} 0.04^* 0.06 0.20^{***} -0.25^{***} 0.15^{***} 0.34^{***} 0.04^* 0.06 0.22^{***} 0.09^* 0.16^{***} -0.11^{**} -0.14^{***} -0.34^{***} -0.23^{***} 0.35^{***} 0.39^{***} -0.05 -0.08^* -0.21^{***} 0.03 $\frac{4}{9}.15^{***}$ 0.00 0.22^{***} 0.09^* -0.03 -0.10^{**} -0.29^{***} $\frac{1}{9}.60^{***}$ 0.21^{***} 0.09^* 0.01 -0.13^{***}	$Log (asylum apply)$ $Log (gdpc)$ $Lag (gdpc)$ $lax-gdp$ $debt-gdp$ $Log (pop^n density)$ $urban pop^n ployment$ $urem-ployment$ -0.10^* 0.09^* -0.11^{**} -0.04 0.21^{***} -0.25^{***} 0.12^{***} -0.10^* 0.35^{***} 0.35^{***} 0.07 0.10^* -0.11^{**} 0.15^{***} 0.09^* 0.35^{***} 0.29^{***} -0.12^{**} -0.27^{***} -0.46^{***} 0.25^{***} -0.11^{**} 0.35^{***} 0.29^{***} -0.12^{**} -0.27^{***} -0.46^{***} 0.25^{***} -0.11^{**} 0.35^{***} 0.29^{***} -0.12^{**} -0.27^{***} 0.46^{***} 0.34^{***} -0.14^{***} 0.07 0.12^{***} 0.13^{***} -0.06 0.04 0.19^{***} -0.25^{***} 0.10^* -0.27^{***} 0.06^* 0.06 -0.14^{***} -0.34^{***} -0.25^{***} 0.11^{**} -0.35^{***} 0.04 0.06 -0.34^{***} -0.25^{***} 0.16^{***} -0.35^{***} 0.04 0.06 -0.27^{***} -0.25^{***} 0.11^{***} -0.16^{***} -0.14^{***} -0.34^{***} -0.25^{***} 0.35^{***} 0.34^{***} -0.05 -0.08^{*} -0.21^{***} -0.25^{***} 0.35^{***} 0.01^{***} -0.05^{***} -0.06 0.05^{***} -0.25^{***} 0.35^{***} 0.00^{*} -0.02^{*} -0.03 -0.10^{**} -0.14^{***} $-$	$Log (asylum apply)$ $Log (gdppc)$ $lax-gdp$ $debt-gdp$ $Log (pop^n) density$ $urban pop^n pop^n$ $unem-ployment$ $education$ -0.10^* 0.09^* -0.11^{**} -0.04 0.21^{***} -0.25^{***} 0.12^{***} -0.20^{***} -0.10^* 0.35^{***} 0.35^{***} 0.07 0.10^* -0.11^{**} 0.15^{***} 0.09^* 0.09^* 0.35^{***} 0.29^{***} -0.12^{**} -0.27^{***} -0.46^{***} 0.25^{***} -0.16^{***} -0.11^* 0.35^{***} 0.29^{***} -0.12^{**} -0.27^{***} -0.46^{***} 0.25^{***} -0.16^{***} -0.11^{**} 0.35^{***} 0.29^{***} -0.12^{**} -0.25^{***} 0.34^{***} -0.11^{**} -0.14^{**} 0.07 -0.12^{**} 0.13^{***} 0.06^* 0.04^* 0.19^{***} -0.18^{**} -0.14^{**} 0.07 -0.12^{**} 0.09^* 0.06 0.04 0.19^{***} -0.08^* 0.21^{***} 0.10^* 0.09^* 0.06^* 0.06 0.04 0.19^{***} 0.06^* 0.21^{***} 0.16^{***} 0.09^* 0.06 0.06 0.14^{***} 0.20^{***} 0.01^* 0.21^{***} 0.02^* 0.08^* 0.06 0.21^{***} 0.21^{***} 0.02^* 0.09^* 0.04^* 0.01^* 0.04^* 0.21^{***} 0.02^* 0.02^* 0.09^* 0.01^* 0.01^* 0.04^* 0.14^{***} 0.0	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	Log applyLog (cpi) Log $(pdpc)$ Log (pop^{P}) urban pop^{P} unem- $ployment$ educationhealthdefense-0.10*0.09*-0.11**-0.040.21***-0.25***0.12***-0.20***-0.23***0.03-0.10* 0.35^{***} 0.35^{***} 0.070.10*-0.11**0.15***0.09*-0.23***0.030.09*0.35*** \cdots 0.29***0.07*0.10*-0.11**0.15***0.09*0.35***-0.15***0.09*0.35*** \cdots 0.29***0.12**0.09*-0.15***0.46***0.25***0.11***0.39***-0.05*0.01*0.35*** \cdots 0.12***0.09*-0.12**0.04***0.25***0.11***0.15***0.02***-0.11**0.35***0.29***0.12***0.01**0.06*0.34***0.11***0.15***0.02**-0.12***0.10*0.12***0.13***0.06*0.14***0.06*-0.02***0.02***0.02***-0.11**0.40**0.35***0.04*0.06*0.14***0.02***0.05*0.21***0.05*-0.22***0.11**0.46***0.35***0.04*0.02***0.05***0.25****0.05*0.05***-0.23***0.35***0.34***0.05***0.05***0.05***0.05***0.05***0.05***0.05***-0.23***0.35***0.34***0.05****0.05****0.05****0.05****	Log asylum applyLog ($defnee$)Log ($defnee$)Log ($defnee$)Log ($defnee$)Log ($defnee$)urem- $defnee$ elucationhealthdefenseFreedom of exp0.10*0.09*-0.11**-0.040.21***-0.25***0.12***-0.20***-0.23***0.03*0.03***0.03-0.29***-0.10* \cdot 0.35***0.35***0.35***0.070.10*-0.15***0.09*0.09*0.35***-0.15***0.14***-0.09*0.35***0.29***-0.12**0.12***-0.46***0.25****0.09*0.35***-0.15***0.01*-0.11**0.35***0.29***-0.12**0.13***-0.09*-0.46***0.34***-0.11**0.15***0.020.22***-0.01*0.35***0.29***-0.12**0.13***-0.09*-0.46***0.34***-0.11**0.15***0.020.22***-0.01*0.35***0.29***-0.12**0.13***-0.02***0.34***-0.01**0.05-0.020.09*-0.02***0.10*0.12***0.03**0.06.040.19***-0.08*-0.05-0.05-0.02-0.25***0.11**0.46***0.040.060.21***0.050.21***0.050.03-0.050.03-0.25***0.11**0.25****0.03*0.11***0.25***0.03-0.050.03-0.060.21***-0.25***0.15***0.02***0.02**<

Note: *p<0.1; **p<0.05; ***p<0.01