Abstract

Structural adjustment policy, with its conventional merits, also has social consequences on the nations adopting such policy. Scholarship on the effect of structural adjustment program on immigration flows is limited. This paper examines structural adjustment's relationship with immigration flows, specifically refugee, asylum-seeking, IDP, and brain-drain flows. The results of our analysis indicate that countries eligible for IMF structural adjustment loans, if deciding to accept such loan, would see an increase in the number of refugees it produces by almost 1 per 100 persons. Overall, the findings suggest a concrete, positive relationship between structural adjustment policy and refugee rates. Due to insufficient research in this topic, we offer future research recommendations in the conclusion section.

1. Introduction

That structural adjustment policy causes extensive negative social consequences to the nation adopting such policy is far from an agreed upon notion, or even a new claim. Ever since the World Bank and International Monetary Fund converged roles and began offering monetary and structural loans to impoverished nations in the 1980s, economists, most notably Cornia, Jolly, and Stewart have studied and explored the social consequences of adjustment policy. (Lensink, 1995; Cornia, Jolly, Stewart, 1987).

To say the least, empirical evidence is unambiguous about the *extent* to which structural adjustment loans, or SALs, affect a nation's socioeconomic wellbeing, and academics have yet to reach a consensus for the best way to accommodate for social shortcomings due to the IMF's SAL packages. Interestingly though, a large body of research indicates negative effects on a nation's healthcare system, educational attainment, energy costs, and food prices, giving way to a call for more gradual implementation of policy and compensatory financing to deal with social consequences of SALs (Cornia, Jolly, Stewart, 1987; Kentikelenis, 2017). SALs almost certainly, in the short-run, have negative social consequences (Gunning,1988; Stroup, Zissimos, 2013). More important a question is whether SALs lead to an improvement in long-term economic growth and if this outweighs short-term human suffering attached to SAL assumption (Szirmai 2005; Harrigan, Mosley, and Toye 1991).

Not many studies exist that examine how structural adjustment policy affects migration flows, specifically that of human capital flight and refugee, asylum, and internally displaced persons flows. Forced and unforced migration can lead to both deterioration and improvement in individual quality of life, as well as stagnation or acceleration of a nation's economy. Hence, international and intranational immigration flows are studied extensively, as such demographic changes have widespread human, political, and economic implications.

That there is a dearth of research in this subject is surprising on at least two accounts. Firstly, as stated, researchers have analyzed almost every possible social fallout of structural adjustment, including its effects on education, healthcare, ecology, prices, political instability, social programs, and agricultural production, without much mention of immigration. Further, since the proliferation of globalization in the 2000s and the parallel increase in cross-country and intra-country immigration, both voluntary and involuntary, the determinants of immigration and subsequent socioeconomic results of immigration have been studied extensively without much regard to how structural adjustment affects immigration (Samir, Ralph, & Connel 2003; Jacques, Longhi, and Nijkamp 2004).

To understand why SALs may incur social cost, section 2 provides a brief yet far from incomplete definitional and historical primer on structural adjustment. Next, section 3 will examine previous literature regarding both SALs and corresponding social and immigration outcomes. Section 4 provides the description for our research design, delineating the sample, dependent variables, and explanatory variables, and section 5 provides the methodological approach to our statistical model. Sections 6 and 7 examine our result and ask if significance changes with a change in the standardization of the key variable. Section 8 concludes our discussion and provides theoretical arguments for our findings as well as policy recommendations and direction for future research in the subject.

2. Background

2.1 Structural Adjustment- What is it?

Structural adjustment policy, or SAP, refers to any policy a nation pursues to restore current account deficits, promote trade liberalization and market privatization, and promote central government fiscal and monetary austerity. Concretely, nations accomplish these policy objectives via depreciation of overvalued currencies, promotion of exports, abolition of import quotas, reduction in discretionary government spending, increasing interest rates to elicit higher domestic savings, increasing agricultural prices to stimulate production, and abolition of price and minimum wage controls. Many of the listed policy objective can result in social unrest, acute poverty, and inability to live with all needs met, at least in the short-term.

We make a subtle distinction that structural adjustment policy is not exactly comparable to structural adjustment loans, as a nation must write a letter of intent as to *which* structural adjustment policies they will pursue and *how* they would do so to obtain an IMF SAL. In comparison, any nation can implement structural adjustment policy without direction from multilateral organizations and nations do not necessarily need loans to execute such policy.

2.2 Structural Adjustment- A Brief History

Before the adoption of structural adjustment as the best way forward for indebted and impoverished countries stood ideas of structuralism and central government initiative. From 1950 to 1980, we see in many developing governments the desire to take appropriate measures for the sake of economic development (Szirmai 2005). The governments of China, Japan, Korea, and many east and central Asian countries struck successful balances between central planning and public-private partnerships, while the vast majority of Sub-Saharan and Latin American governments failed miserably, due to both economic and political reasons, at establishing successful enterprises and technical planning.

The necessity to implement structural adjustment policy, whether through IMF loans or central government initiative, is closely tied to the idea of debt. Though negatively connotated, debt serves useful for capital accumulation and building of industry. Interest payments on debt are financed from the increase in national income due to capital accumulation, so, theoretically speaking, the more debt, the better (Lewis 1978). National debt only becomes problematic for two reasons. When loans are used unproductively (e.g. for consumptive purposes, corruption payments, wasteful government bureaucracy, unproductive investment spending), the debt is not refinanced into the economy. Further, debt becomes viciously cyclical when it only serves to finance debt service payments on previous debts, a phenomenon known as *debt overhang* and all too well known amongst Latin American countries in the 1980s (Krugman 1988).

The pressure on the international less-developed community to implement SAPs increased tremendously following the Latin American debt crisis of 1982 (Lensink, 1995). Inflationary pressures due to OPEC's increase in oil prices exposed Latin America's inability to repay debt obligations and rampant public sector corruption and patronage. It is generally agreed upon that foreign investment and loans were used unproductively. Further, owing to gargantuan government deficits and expansionary monetary policy, inflation sharply increased, which led to sudden halts in capital inflows and slowdowns in domestic production. Latin American governments began acting little too late , attempting to penetrate export markets to reduce current account deficits and implement tight monetary policy to little avail, and Latin American countries began defaulting on obligations.

The lessons of the Latin American debt crisis are manifold. Interestingly, the implementation of SAP pre-crisis could very well have mitigated the magnitude of the debt crisis. So called fiscal and monetary austerity coupled with market liberalization and export promotion could have led to a better absorption of the worldwide oil shock, and Latin American nations would not have been forced to default and fall into economic stagnation.

We leave out an innumerable amount of details in relation to SAPs, SALs, debt, and especially the Latin American debt crisis, yet for the reader who has little to no knowledge about these subjects, we believe this is enough to continue with our analysis. Further, it must be noted that countries that struggle with debt, clientelism, and soaring current account deficits must implement structural adjustment, or some sort of drastic policy measures, to avoid inevitable economic stagnation and social unrest, either through SALs or internal efforts.

3 Literature Review

3.1 Immigration

To say the least, research regarding SAL adoption and immigration flows is scant. On how migration affects structural adjustment, Chesney, Hazrari, and Sgro (1999) find an ambiguous result. However, they find illegal migration 'may help in lowering the relative price of nontraded goods', thus perhaps having a positive social impact on a state implementing structural adjustment. Bravo (1992) examines demographic changes in Chile due to SAP adoption, and finds fragmentary evidence suggesting increases in internal migration and spatial distribution due to 'improved highway networks and overall communications', both of which were important features of Chilean structural adjustment in the 1980s. Indeed, since our paper examines the effects of SALs on human capital flight, refugee, IDP, and asylum flows, both studies provide minimal empirical bases for our analysis.

3.2 Healthcare

Kentikelenis (20117) draws on multiple studies attempting to explain the decrease in healthcare affordability and quality following SAL adoption. He uses a conceptual framework predicated on the financing of Greece following its central government debt default in 2010. Kentikelenis finds SAP implementation to cause reduction in public health expenditure due to austere fiscal policy, decreases in health care coverage, increases in co-pays, inadequacy in coordination of health services, increases in prices of medical technology acquisition by firms and hospitals, and increases in prescription drug prices by hospitals and users alike. These realizations occurred at the expense of the poor, as higher income individuals could afford private healthcare, which was an industry mostly unscathed by SAL adoption (Kentikelenis, King, Stubbs 2016). From a micro standpoint, we see an increase in HIV amongst People Who Inject (PWIs), suicide and depression amongst the Greek population, and homelessness, all of which had been directly due to structural-adjustment linked policies (Basu and Stuckler 2013). Though the IMF introduced social amelioration measures, including health vouchers, evidence suggests insufficient implementation due to administrative hurdles and bureaucracy (C. Economou, 2014).

3.3 Education, Food Prices, and Ecology

Noss (1992) reviews literature regarding adjustment policy and education and concludes that 'there appears be a causal link'. However, the nature of the link and the mechanisms of action, other than that of decreased central government education spending, continue to be poorly understood. A cross-sectional OLS regression on survey data by Onyeiwu, Iorgulescu, and Polimeni (2009) indicates no link between SAP implementation and poverty reduction and food price stability in the Nigerian village of Umulwe. From an ecological standpoint, reducing public expenditure was found to conserve forests and enhance economic growth in Nicaragua (Glomsrod, Monge, and Vennemo 1997). However, Austin, McCarthy, and Noble (2017) find that implementation of SALs substantially decreases the amount of land under conservation and protection in less-developed nations.

The literature regarding structural adjustment policy and its subsequent socioeconomic impacts is substantial, yet the establishment of at least a small body of literature regarding SAPs' impact on immigration in a globalized world must be initiated to understand, on a holistic scale, structural adjustment's impacts on society.

4 Data Description

4.1 Sample

The World Bank classifies nations based on income into four categories: low, low-middle, upper-middle, and high. The World Bank uses the Atlas methodology to calculate Gross National Income and proceeds to divide GNI by mid-year population to attain GNI per capita. The World Bank then portions countries based off GNI per capita into one of the aforementioned four categories. Our sample consists of low and low-middle income countries as of July 2008-July 2009 (N=93).[1] We restrict the sample to low and low-middle income countries because nations in such categories receive the vast majority of SALs from the IMF. Countries included in the regression are listed below, and bolded countries are those who have received IMF SALs in 2008.

[1] The Democratic Republic of Korea is considered low income, yet it is not eligible for SALs because it is not part of the IMF. As such, we exclude the nation from our sample. Further, since Djibouti, Syrian Arab Republic, and Somalia lack data on one control variable, GDP Per Capita, Purchasing Power Parity, and one key control variable, Structural Adjustment Loan to GDP, we omit these countries when the listed variables are in use.

<Insert Table 1 Here>

4.2 Dependent variables

4.2.1 Human Capital Flight

The first dependent variable is *Human Capital Flight*, or, colloquially, brain drain. The Institute for Employment Research (IAB), an independent U.S-based research organization, formulates human capital flight data based on 5-year census data of 20 of 34 OECD countries. Roughly speaking, the IAB Human capital flight rate is described as the number of high-skilled immigrants from source country relocating to one of the 20 OECD countries divided by source country population.[2] The IAB uses high educational attainment, defined as completion of higher than high-school or equivalent, to classify high-skilled immigration. The migration figures refer only to individuals aged 25 years and older because the IAB's primary focus is providing firms with employment data, and most employable individuals under 25 are either students or low-skilled. The main flaw in this data is that it includes only 20 destination countries. Unfortunately, assigning brain-drain a numerical rate for each country is difficult, and statistical output regarding human capital flight to each destination country is scant, as most source and destination countries do not gather this data. Nonetheless, the IAB data serves as a good starting point for understanding structural adjustment and its relationship to human capital flight.

4.2.3 Refugees, Asylum-seekers, and IDPs

The United Nations Refugee Agency, or UNHCR, collects and reports data about refugee and asylum-seekers. The *proGes* live register is established in each country to continuously align the administrative records with real amounts of refugees and asylum-seekers on the ground. The UNHCR, governmental agencies, and or NGOs collect data about refugees and IDPs in each country, and asylum-seeker data tends to be derived from separate governmental agencies.

A *Refugee*, per the UNHCR, is 'someone who has been forced to flee his or her country because of persecution, war or violence' (UNHCR Statistical Database). They have a 'well-founded fear of persecution for reasons of race, religion, nationality, political opinion or membership in a particular social group'. The UNHCR provides nominal values of refugees per country, and rates per person are calculated using the World bank mid-year population estimates of origin countries (World Bank Development Indicators). The category of refugee includes those in 'refugee-like situations', described as those in refugee situations but for whom refugee status has, for practical or other reasons, not been ascertained.

According to the UNHCR, an *Asylum-seeker* is an individual who has formally applied for international protection and whose claim for refugee status has yet to be decided upon. Asylum-seekers are *already* in the country (or the country point of entry) they desire to seek asylum in, either illegally or not. A flaw in the variable is evident when accounting for regional or national differences in *proximity* to countries who have relatively open points of entry, borders, or application processes. For instance, asylum-seeking for individuals near Germany may be less difficult than for countries near Saudi Arabia because Germany has a less restrictive process and more points of entry. As such, we control for regional differences using dummy variables (see section 4.3.7). Asylum-seeker nominal values are retrieved from the UNHCR data repository, and rates per person are calculated using World Bank mid-year population estimates of origin countries.

Though the UNHCR collects data regarding internally displaced persons, its definition is quite restrictive. The UNHCR 'only includes conflict-generated IDPs *to whom the Office extends protection and/or assistance*'. As such, UNHCR statistics do not provide comprehensive pictures of global internal displacement. The United Nations recommends consulting the Internal Displacement Monitoring Centre (IDMC) for more holistic data. The IDMC defines IDPs as those who are forced to flee their habitual residence but stay within country borders. The IDMC relies on multiple NGOs, governments, and international organizations for reliable data. Further, their estimates of IDP figures include those who are displaced due to natural disaster *and* conflict, as opposed to just conflict. We must note that methodological challenges to tracking IDPs are numerous. Data sources tend to use different definitions to classify IDPs (in Afghanistan and Pakistan, IDPs must register with authorities to be counted), data sources are

[2] A more descriptive methodology and list of definitions can be found at https://www.iab.de/en/daten/iab-brain-drain-data.aspx

limited from country to country, and underestimates due to inability to enter IDP zone are all too common.[3] However, the IDMC provides the most robust data available on IDPs, so its dataset will be used accordingly.

Ideally, we would have welcomed the all-encompassing dependent variable of net migration rates to supplement our general understanding of the relationship between SALs and immigration. However, net migration is calculated every half decade from 2017, and our dependent variables are measured in 2010 terms due to limited availability of brain drain data. Nonetheless, the above-mentioned dependent variables can give quite specific insight on forced and unforced migration and its dependency on SALs.

4.3 Explanatory Variables

4.3.1 International Monetary Fund Structural Adjustment Loan

Our key independent variable is *IMF Structural Adjustment.* We retrieve the data using the IMF data repository (IMF International Financial Statistics). There are various ways to standardize IMF SAL packages to make them comparable across nations. We decide to use dummy variables to encode whether a nation has received IMF SAL (see sensitivity analysis section for alternative standardization techniques). A nation is encoded "1" if she has received an IMF SAL in the 2008 calendar year and "0" otherwise. It follows from national experiences that SAP implementation, at least in the short-run, lead to social unrest and difficult economic situations. Thus, we hypothesize a positive relationship between IMF SAL and all listed dependent variables. In terms of brain drain, restructuring of pubic enterprises into private firms oftentimes leads to unemployment, so IMF SALs may lead a high-skilled worker to leave her country to search for better opportunity. Structural adjustment tends to lead to heightened tensions between the populace and governors because of lack of social programs, so we believe this may cause persecution and subsequent refugee, IDP, and asylum status (Szirmai 2005).

4.3.4 Control of Corruption, Political Stability, and Regulatory Quality

In determining an individual's decision to migrate, both willingly or unwillingly, we must quantify the political and economic environment surrounding her. As such, we use normalized estimates, ranging from -2.5 to 2.5, of a country's control of corruption, political stability, and regulatory quality, estimated by the World Bank worldwide governance indicators. The World Bank quantifies these variables using several survey sources, including residents, citizens, experts, and entrepreneurs (Kaufmann, Kraay, and Zoido-Lobaton, 1999a, 1999b).

Control of Corruption is defined as 'perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption'. *Political Stability* measures the 'perceptions of the likelihood of political instability and or politically-motivated violence, including terrorism'. Finally*, Regulatory Quality* captures the 'perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development' (Kaufmann, Kraay, and Zoido-Lobaton, 1999a, 1999b).

Respondents who are asked certain governance and regulatory questions in a certain year may consider previous years as well, consciously or not, which may lead to bias assessments. However, the bias introduced due to this dilemma is likely small, as this problem seeps across the spectrum for all countries.

Of the three indicators, regulatory quality contains a deeply subjective idea of the best form of economic planning, or lack thereof. Its survey questions have been criticized for creating a binary opposition, oftentimes pegging government planning *against* privatization and liberalization. Indeed, one of the numerical components of the variable comes from assessments of the Heritage Foundation, a conservative U.S think tank. Further, the indicator *Political Stability* includes terrorism in its definition of political stability as of 2002, leading to criticism of bias in definition, as inhabitants of other countries may perceive the threat of terrorism to a much lower extent than the United States.

4.3.5 Gross Domestic Product, Purchasing Power Parity Per Capita

To control for national economic welfare, we use *GDP per capita, Purchasing Power Parity Per Capita*. Purchasing power parity allows us to standardize abilities to pay for essential goods and services cross-nationally. It must be known that, though GDP per capita, in all its ability to predict individual economic welfare, contains some flaws. For instance, military spending is included in GDP per capita, as it is a form of government spending, yet military

[3] A more detailed methodological approach to tracking IDPs can be found at https://www.iab.de/en/daten/iab-brain-drain-data.aspx

spending does not directly improve individual welfare. Further, a problem specific to countries in our sample is that illicit and off-record transactions are not included in GDP per capita. In nations where unrecorded transactions are commonplace, GDP per capita fails to measure such transactions. Though GDP per capita (or any other indicator for that matter) is not meant to capture the successes and limitations of a country's economy by itself, GDP per capita serves as a nice starting point for assessing general economic well-being. We obtain GDP, Purchasing Power Parity per capita from the World Bank Data Bank (World Bank Development Indicators).

4.3.5 Natural Disaster

We must further account for relatively unpredictable determinants of immigration. *Natural Disasters*, per Centre for Research on the Epidemiology of Disaster (CRED) criteria, must affect 100 or more people, be declared a state of emergency, kill 10 or more people, or be subject to international assistance. The School of Public Health of Université Catholique de Louvain of Belgium runs CRED, and data come from a wide variety of international partners, including WHO, UN-DHA, and Red Cross. Since the extent to which natural disasters affect a community is difficult to measure, we use a holistic metric known as "Total Affected". Total affected in a natural disaster equals the sum of total deaths, injuries, and affected due to the natural disaster. "Affected people" is defined as people requiring 'immediate assistance during a period of emergency', including 'food, water, shelter, sanitation, and immediate medical assistance'.

Deaths solely may be a bad indicator for natural disaster severity because many natural disasters, like floods or drought, may decimate entire communities' livelihood but not necessarily kill them. As such, total affected serves a better indicator for natural disaster severity. Total affected is divided by mid-year population estimates from the World Bank, resulting in a standardization of the variable into a 'total affected per person' variable. If total affected per person is above 2 per cent, we use a dummy variable to encode '1' for Natural Disaster and '0' for no Natural Disaster. We use dummy variables because total affected does not capture subsequent indirect effects of the natural disaster (e.g. looting, violence, ethnic tension, immigration).

4.3.6 War and Armed Conflict

Next, we must account for causes of immigration. The next variable we use is *War and Armed Conflict*. *War and Armed Conflict* is defined as 'contested incompatibility that concerns government and/or territory, where the use of armed force between two parties, of which at least one is the government of a state, results in at least 25 battle-related deaths in a calendar year', per the Upssala Conflict Data Program (UCDP). UCDP is a 40 year-old project with bases in collecting war and armed conflict data. UCDP is run by the Department of Conflict and Peace Research of Uppsala Universitet, Sweden. UCDP collects data using a data retrieval algorithm, in which global articles and news reports containing information on deaths and injuries is presented and subsequently sifted by human coders. This results in the sifting of roughly 50,000 news reports a year. Further, UCDP, to further verify final data, consults NGOs, international organizations, truth commissions, and historical archives. Due to political under and overestimation, UCDP does not consult governments.

War and Armed conflict, being that the number of deaths may not necessarily proxy the severity of the conflict appropriately, may be a problematic variable. A village or city may be uninhabitable due to armed conflict. Thus, civilians may be forced to emigrate, so death rates could very well limit our understanding of conflict severity. Unfortunately, we do not have values for total amount of individuals affected as we do for *Natural Disaster*. As such, we use a dummy variable to determine if a nation has undergone a war or armed conflict to better proxy conflict severity. '1' indicates conflict has occured and '0' indicates otherwise.

4.3.7 Geographic Setting

A country's *Geographic Setting* is used to control for geographic differences in the listed dependent variables. For instance, refugee rates may be markedly higher in Middle East and North African countries than in East Asian and Pacific countries. We use the following country geographic classifications, as categorized by the World Bank: East Asia and Pacific, Europe and Central Asia, Latin America, Middle East and North Africa, North America, and South Asia. We use Europe and Central Asia as the reference group because, on aggregate, such countries have the lowest average refugee, asylum, and IDP rates in our sample. Subsequently, we can compare other geographic immigration rates to the Europe and Central Asian baseline, as it serves as a normative group.

5. Methodology

Preferably, we would make use of both the cross-section and time-series dimensions of these data. IMF structural adjustment loan acceptance, however, occurs at a rather discontinuous fashion. Hence, we must discard the time-series data and focus on the cross-section.

We use multivariate ordinary least squares to estimate the effects of structural adjustment loans on immigration. This technique is widely used in cross-national comparison, as OLS regression can assess all predictors at once on the outcome variable while controlling for the effects of other predictors in the model (Allison 1999). Further, research regarding SAL effects on immigration is relatively new, and this technique provides a basic starting point upon which future analyses can build upon. The dependent variables are measured in 2010 years and the explanatory variables are measured in 2008 years, allowing for a clear temporal. The temporal approach and gap of two years is in line with previous estimations of SAP and social consequences (Austin, McCarthy and Nobel, 2017). However, for natural disaster and armed conflict dummy variables, we encode using 2008-2010 data because natural disaster and conflict can have spontaneous effects on immigration, as opposed to gradual effects from SAL or GDP per capita.

Because one may wonder, for instance, whether regulatory quality is an irrelevant variable when accounting for refugee rates, we run an F-test, or a parsimonious encompassing test, on variables whose t-values are less than 1. If the test is not significant at the 0.05 level, we are justified in omitting such variables in a group. If the test is significant, we omit the explanatory variables (excluding the key variable) whose t-ratios are less than 0.5. As such, we provide a way to choose only the important of a large selection of explanatory variables (Clark 2014). Indeed, overspecification of our model could lead to an increase variance in the rest of our explanatory variables and lead to misspecification. We do not omit regional dummy variables because removing of one geographic variable would produce two reference groups, both ‘Europe and Central Asia’ and the omitted group. Thus, the included dummy coefficients would be difficult to interpret.

Due to possible multicollinearity among the explanatory variables (e.g. political stability and corruption), we run variance inflation factors for each explanatory variable of each model to determine possible issues. Each explanatory variable contains a VIF under three, with the mean for each equation below 2.5, so VIFs are in the appropriate ranges. Lastly, we run the regression using robust standard errors to avoid possible heteroskedasticity. This is in line with econometric models using per capita figures (Wooldridge 2019, pp. 268-269).

6. Results

The results from the OLS regression models are presented in Table 1. Each column represents a different outcome variable being measured. Every omitted control variable either passed the Parsimonious Encompassing Test as a group or contained a t-value of less than 0.5, thus decreasing the variance of all OLS estimates.

The first model demonstrates the relationship between SAL adoption and human capital flight is not significantly different from zero. Our hypothesis states SAL adoption affects human capital flight because the IMF oftentimes requires restructuring of enterprises from public to private, thus increasing the unemployment rate (Clarke 1998). We reject this hypothesis. We do find *Armed Conflict*, unsurprisingly, to be highly significant in relation to Brain Drain, as well as being a nation in Sub-Saharan Africa or Latin America, in relation to Central Asia and Europe. *Armed Conflict* is linked with increased brain drain by 10.7 per 100 *high-skilled workers*.

We find a positive relationship between SAL adoption and refugee rates amongst low to low-middle income countries. Specifically, we find accepting an IMF structural adjustment loan to increase the number of refugees a country produces by .932 per 100, or 932 per 100,000 (p=.074). This confirms our hypothesis that obtaining an SAL increases refugee rates amongst low to low-middle income countries. We further find a negative relationship between regulatory quality and refugee rates, and a positive relationship between control of corruption and refugee rates.

Welcoming an SAL does not increase IDP rates within our analysis. However, the occurrence of a natural disaster, within our definition of natural disaster, *decreases* IDPs by .2 per 100 persons. This can perhaps be explained by natural disasters’ ability to incite central government change in housing and assistance needs, yet the sign of the

coefficient remains striking. Lastly, we find no relationship between SAL adoption and asylum-seeking. The model does show that people in Sub-Saharan Africa or the Middle East illustrate higher propensities to seek asylum.

<Insert Table 2 Here: Main Regression Table>

It is no surprise the adjusted r-squared for IDPs and asylum-seekers are so small. IDP rates are oftentimes incited by individual actors and or sporadic and vastly different events, so standardized explanatory variables may not explain IDP situations fully. An innumerable number of variables influence a person's decision to apply for asylum, some of which is not captured by readily available data. One may apply for asylum for reasons not illustrated in data. Of course, our effects can be substantively important but not necessarily explain a large amount of variance. However, we must interpret both models with caution, as a small r squared can indicate omitted variable bias, even though our research design provides well-thought out and readily available data.

For clarity, we must add a note as to why some possible important variables may have been omitted via a parsimonious test. We will use the example of political stability and brain drain. Political stability, at least among a pool of low GNI per capita countries, was not significantly related to brain drain, despite clear evidence of such in multiple works (Docquier, Rapoport 2011). However, we must consider that our sample includes *only* low to low-middle income countries. As such, political stability may not be a significant reason for brain drain differentiability across low-income countries. If our sample included middle-high and high-income countries, we may very well have had a concrete relationship between political stability and brain drain, yet our restrictions, and rightly so, are limited to less-developed nations considering IMF SAL.

We discuss implications of our results and further research suggestions in the conclusion section.

7. Sensitivity Analysis

We include a sensitivity analysis section to ensure our subjective standardization of Structural Adjustment Loans does not affect the model. Our first sensitivity model includes the key variable of *SAL to GDP, Purchasing Power Parity ratio*, as opposed to an SAL dummy. We use the SAL U.S.D value divided by GDP, Purchasing Power Parity, a statistic obtained through the World Bank Data Bank, to compute our variable. We use this standardization technique as a way of quantifying the *extent to which* SALs burden (or influence) a nation's economy. For instance, in 2008, Malawi adopted an SAL about .5 per cent of its GDP, indicating a relatively high burden in comparison to the mean SAL-adopters (.35 per cent). As such, we hypothesize a higher SAL to GDP ratio would force countries to implement SAP more rigorously, thus increasing social unrest and influence all listed dependent variables.

Our second sensitivity model uses *SAL per person* as the key variable. We use SAL U.S.D value divided by country mid-year population, to attain SAL per person. This standardization technique is used to see how much burden each person must bear in absorbing (and later repaying) the SAL. The largest value is $58.50 per person, attributed to Libera. As such, we hypothesize a higher SAL per person burden will further accelerate SAP implementation, as pressure piles to repay the loan and remain in good standing with the IMF to ensure continuation of investor capital inflow.

Tables 3 and 4, appended at the end of the paper, include the sensitivity analysis models. We follow the same methodological approach delineated in the methodology section.

Surprisingly, we find a statistical significance between SAL to GDP and Brain Drain (p=.08). Specifically, we find a unit increase in the SAL to GDP ratio to *decrease* human capital flight by 1.3 per 100. high-skilled people. This indicates that, contrary to our hypothesis, SAL adoption decreases the amount of high-skilled people leaving their origin country. As such, we must approach with caution the exclusion of SALs' null effect on a country's human capital flight rate. The opposing results using SAL dummy and SAL to GDP create an ambiguous answer in regard to human capital flight.

We find the use of SAL to GDP and SAL per person to have no changing effect on the *significance* of SALs on refugee rates (p=.01, p=.009). Under SAL to GDP, we find armed conflict to be significantly related to refugee rates. Control of corruption under SAL per person does however turn insignificant. Under the first sensitivity model, we find adoption of SALs in .1 per cent of GDP increments to increase refugee rates by 2.1 per 100. Under the second

model, an increase in the SAL per person burden by ten dollars increases refugees to .21 per 100 persons. Because the significance remains under our sensitivity pressures, we can more confidently conclude that SAL adoption is related to an increase in refugees.

8. Conclusion-

Based on the results of our analyses, we find substantial evidence linking Structural Adjustment Loan adoption to increased refugee rates. We find SAL acceptance to increase refugee rates by .93 per 100 persons , an increase in the SAL to GDP ratio by one-tenths of a per cent to increase refugee rates by 2.1 per 100 persons, and an increase in the SAL per person burden by ten dollars to increase refugee rates by .21 per 100 persons. These results are all too likely due to features of structural adjustment policies described earlier, namely reduction of budget deficits, increase in taxes, cutting of public expenditure, abolition of minimum wage controls, liberalizing trade policy, increasing agricultural prices, and increasing and deregulating interest rates. Such policies create heightened social tension between central governments and the population and between ethnic groups (Szirmai 2005).

Within the boundaries of structural adjustment, policy recommendations mirror that of *Adjustment with a Human Face* (Cornia, Jolly, Stewart, 1987). We propose a more gradual implementation of structural adjustment policy and rebates to deal with expenditure cuts that may indirectly instigate refugee claims. Since, of course, *Adjustment with a Human Face* was written more than 30 years ago and the IMF has heeded some researcher recommendation, with fragmented success the social problems arising from SAP may be *inherent* in its implementation (Kentikelenis 2017). Agreed upon by most economists are the short-term social consequences arising from SAP, so an increase in refugees may be forever interlocked with structural adjustment. If so, we may ask what specific SAP policy has the greatest effect on refugee rates and find a way to decrease this policy's negative externality, yet controlling for specific policies is extremely difficult because they each work in tandem towards the goal of liberalization and privatization.

Alternatives to structural adjustment policy include structuralism, yet the use of central government planning to reduce country poverty is precarious, as most sample countries produce high levels of clientelism, corruption, and waste. Some economists recommend debt forgiveness to ameliorate balance of payment crises, yet this may create a moral hazard and incite profligate behavior (Buiter, Srinivasan 1987). Some authors of debt literature recommend *debt reduction* to ameliorate current account deficits, primarily via debt to equity swaps and decreasing of concessional rates (Krugman 1988; Buiter, Rahbari 2015).

There are several directions which could be explored in further research. Firstly, one could derive broader dependent variables to ascertain the general effects of SAL adoption on immigration. Usage of dependent variables, such as emigration rates or net immigration rates, could further deepen our understanding of SALs' implications on recipient countries.

The IMF offers three types of structural adjustment loans*: Extended Credit Loans* to address protracted balance of payments needs, *Standby Credit Loans* to address short‑term and precautionary balance of payment needs, and *Rapid Credit Loans* to provide rapid low access with limited conditionality to meet urgent balance of payment needs. It would be interesting to parcel out the effects of *each* type of SAL package on immigration.

Another route one may take when researching structural adjustment and immigration is to include SALs from other international organizations, including the African Development Bank, in encoding the key variable. On an anecdotal level, researchers may study the effects of a structural adjustment policy on immigration rates. To illustrate, a researcher may study the effects of increased food prices on refugee rates, though controlling for other structural adjustment policies and political factors may be difficult without a statistical model. One could study how increased food prices has led an individual or group to resort to violent acts and thus displacing a people from their homes. Anecdotal and human-based evidence is quintessential in assessing structural adjustment policy implications, as so demonstrated by Basu and Stuckler's ability to connect structural adjustment policy and increased HIV rates amongst People Who Inject.

Appendix:

<Insert Table 3 Here: Regression Table with Structural Adjustment Loan to GDP Ratio as Key Variable>

<Insert Table 4 Here: Regression Table with Structural Adjustment per Capita as Key Variable>

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