

Mobility of Rights: Exchange Rates, Labor Mobility and Immigration Policies in an Integrated World.*

Adrian J. Shin[†]

November 7, 2012

Please do not cite without the author's permission.

Abstract

This paper proposes an alternative model of how policymakers respond to exchange rate shocks under capital mobility. The formal model presented in the paper diverges from the existing literature by incorporating cross-border labor mobility and immigration policy into the study of trade, tax, and capital policies from a comprehensive perspective of international factor mobility. The model shows that currency depreciation can cause a labor shortage in the migrant-receiving state since migrant workers tend to return home in response to decreasing remittances. Policymakers may respond to a labor shortage by providing rights to migrants in order to attract more workers. But, the likelihood of such policy provision decreases as trade openness increases. An extension of the model shows that currency appreciation can cause a labor surplus in the migrant-receiving state since illegal immigration increases in response to increasing remittances. Policymakers respond to surplus labor by restricting rights to migrants in order to deter illegal immigration. But, policymakers may decide to be less tough on illegal immigration when trade is open. The differences in policy responses occur because of firms' divergent preferences towards exchange rates under various levels of trade openness. This paper makes two important contributions. First, the model shows that scholars cannot explain policy responses to exchange rate shocks without examining labor mobility and immigration policy. Second, immigration policy cannot be fully explained without considering the exchange rate and its effect on cross-border labor movements.

*Prepared for IPES 2012. This material is based upon work supported by the National Science Foundation Graduate Student Research Fellowship under Grant No. DGE 0718128.

[†]Department of Political Science, University of Michigan, Ann Arbor, 5700 Haven Hall, 505 South State Street, Ann Arbor, MI 48109-1045; E-mail: adrianjs@umich.edu. I would like to thank Bill Clark, Andrew Kerner, Barbara Koremenos, and James Morrow for their comments and suggestions. Margaret Peters deserves my special thanks for her guidance, comments, and suggestions from the very beginning of this project.

“A survey by Britains largest Polish-speaking radio station at the end of last year reported that almost 40 percent of migrant Polish workers would seriously consider returning home if the exchange rate fell to four zlotys to the pound” (Andrew Taylor, “Weak Pound has Poles Eyeing Homeland,” Financial Times, May 25, 2008).

Introduction

How do policymakers respond to severe exchange rate appreciation and depreciation of a national currency? Policymakers may use exchange rate policies such as foreign exchange interventions and monetary tools in order to restore the exchange rate to the status quo level. This explanation seems plausible for the U.S. (1981–1986) and Japan (1991–2011). Between May, 1991 and December, 2011, the Japanese Ministry of Finance intervened in the foreign exchange market on 5877 days, 5291 of which involved the sale of the Japanese yen for depreciation. This is approximately 252 days per year on average.¹ In the U.S. from 1981 to 1986, interest groups demanded dollar depreciation instead of other forms of protectionism.² The U.S., however, has intervened much less frequently than Japan in the 1990s, on eight different days in 1995 and only twice from 1995 through December 2006.³ Yet, the plausibility of this argument relies on two assumptions: policymakers’ *willingness* and *ability* to manipulate the exchange rate.⁴ The willingness assumption ignores divergent policy preferences of domestic actors for exchange rate flexibility and levels, and the

¹The Ministry of Finance Japan website, http://www.mof.go.jp/english/international_policy/reference/feio/index.htm.

²For the politics of various interest groups, see Destler and Henning (1989); Frankel (1994); Henning (1990).

³Federal Reserve Bank of New York website, <http://www.newyorkfed.org/aboutthefed/fedpoint/fed44.html>.

⁴For the literature on foreign exchange interventions, see Fatum and Hutchison (2003); Mussa (1981); Rogoff (1984); Sarno and Taylor (2001); Taylor (1995). For a brief overview of the effect of FX interventions through the portfolio-balance channel, see Dominguez and Frankel (1993).

political influence of interest groups on the exchange rate policy-making process. The ability assumption ignores the effect of capital mobility on exchange rate movements and domestic political institutions of monetary policy such as the degree of central bank independence.

Since exchange rate policies are fundamentally monetary policies, active domestic coalition formations and interest groups' attempts to transform preferences into policy outcomes in exchange rate politics have been deemed more difficult than they are in trade politics. First, since the exchange rate is essentially a public good that is non-excludable and non-rivalrous, coalition formations of interest groups with a common interest will face free-riding problems while attempting collective action for a preferable exchange rate policy.⁵ Second, exchange rate policies (more generally monetary policies) are relatively well-insulated from political pressure since decision-making takes place in highly politically independent bureaucracies (Broz and Frieden, 2001; Krasner, 1978).⁶

Recognizing these limitations in interest-group-based theories of exchange rate policy, more recent studies have begun linking trade politics to exchange rate *levels*.⁷ While the link between exchange rate policy and trade policy has been emphasized by Frieden, Ghezzi, and Stein (2001), the emergence of research with empirical tests is a recent phenomenon in the discipline. For instance, Oatley examines political conditions under which appreciation-vulnerable producers demand trade protection instead of seeking depreciation (Oatley, 2010; Oatley, 2011).⁸ Coplevitch and Pevehouse (2012)'s findings

⁵See Olson (1971) for a general theory of collective action in a stylized fashion.

⁶This depends on the degree of central bank independence and the level of policy autonomy within decision-making bureaucracies.

⁷An exception is Steinberg and Shih (2012). The authors argue that the preference of powerful interest groups such as export-oriented industries and their political patrons was an important factor for the persistent devaluation of the renminbi in China. The authors, however, link exchange rates with other policy instruments, as they argue appreciation was not opposed by powerful interest groups in 1998-1999 and 2006-2007 when they were given compensatory fiscal policies such as import tariffs, export subsidies and tax rebates.

⁸Looking at the volume of anti-dumping petitions across industrialized democracies, Oatley finds that producers of tradable goods demand high tariffs during appreciation and that such demand decreases as the

indicate that when a state experiences currency appreciation, it is more likely to initiate a WTO dispute.

The literature on trade policies and exchange rate levels, however, remains largely incomplete for several reasons. First, it does not offer a clear picture on how exchange rate appreciation affects firms with different sectoral and production characteristics, and who lobbies policymakers for anti-dumping measures or WTO disputes. Second, the current literature is mute on how policymakers compensate losers of currency *depreciation*. Most of these scholars focus on the effect of exchange rate *appreciation* on exporters and import-competing firms without a clear sectoral classification, and are more interested in how policymakers respond to the loss of price competitiveness of a national economy in general. Lastly and most importantly, all of these scholars rely on Frieden (1991)'s seminal classification of interests based on the trade-off between purchasing power and competitiveness without considering the effect of exchange rate movements on migration flows.⁹ Ignoring the effect of exchange rates on migration flows leads to an assumption that exporters always benefit from exchange rate depreciation. This is not always true since labor-intensive exporters' profits heavily depend on the price of labor, wages. If more immigrants come into the domestic labor supply, then labor-intensive firms enjoy lower wages. Exchange rate depreciation, however, reduces the number of migrants in the domestic labor supply because of decreasing remittances, hurting labor-intensive firms through labor shortages.

While high wages clearly attract migrants (Massey et al., 1993), migrants are extremely sensitive to exchange rates since they send a large portion of income to their families back home as remittances. Migrants prefer to work in countries where they can enjoy not only

exchange rate depreciates.

⁹Frieden's original classification posits that export-oriented producers and import-competing producers of tradable goods in the domestic market benefit from a low exchange rate level (depreciation), while international traders, investors, and producers of non-tradable goods and services benefit from a high exchange rate level (appreciation).

high wages, but also highly valued currencies to increase the value of remittance flows (Mishra and Spilimbergo, 2011). When exchange rate shocks negatively affect migrants' real income flows, they may consider returning home or moving to other countries. Since migrants usually do not face any exit restrictions, economies under exchange rate depreciation are likely to experience labor shortages and higher wages which labor-intensive firms dislike. Then, how do firms respond to exchange rate depreciation?

I argue that firms pursue different strategies, depending on whether their goods are tradable, the degree of labor intensity and their expectations about migrant workers' tendency to return home given a particular exchange rate. Some migrant workers may choose to tolerate exchange rate depreciation if wages in host countries are substantially higher than what they would receive in their home countries. Then, firms do not have an incentive to increase wages or seek protection.¹⁰ If migrants choose not to tolerate exchange rate depreciation by returning to their home countries, some firms must come up with ways to cut the costs or become less labor-intensive. Exporters and import-competing firms are able to endure higher wages by gaining price competitiveness during exchange rate depreciation (Frieden, 1991). Large firms can shield themselves from exchange rate shocks by pursuing hedging strategies in the foreign exchange market.¹¹ Firms in the non-tradable sector must ask for tax cuts and/or more migrants because they do not gain price competitiveness from currency depreciation while losing from having to purchase more expensive imports (under open trade) and higher wages. Therefore, policymakers are more likely to provide rights to migrants if political contributions from firms in the non-tradable sector are sufficiently large to offset any political costs that can be imposed by domestic labor for pro-immigration policy *and* if tax cuts to these firms are no longer

¹⁰For instance, firms do not have an incentive to ask for tax cuts or trade protection because exchange rate depreciation improves price competitiveness. This will be shown more formally in the paper.

¹¹While financial innovations in the derivatives market have helped firms and individuals to hedge against exchange rate risks, these contracts are often unavailable to smaller firms.

politically or fiscally feasible.¹² This implies that exchange rate depreciation causes a country-wide demand for migrants' rights when all sectors are non-tradable. But, the demand for migrants' rights decreases as the share of firms in the non-tradable sector decreases in an economy.

Policymakers, however, do not provide rights to migrants when the exchange rate is overvalued. It is the opposite. Since currency appreciation leads to a larger volume of illegal immigration,¹³ policymakers respond to surplus labor by restricting rights to migrants. When trade is open, exporters and import-competing firms lose not only from international competition, but also from currency appreciation. Under such circumstances, tax cuts may not be sufficient to keep firms alive. Labor-intensive exporters and import-competing firms will make political contributions for more migrants. Policymakers can either be less tough on undocumented immigrants, or open up immigration while restricting the rights of undocumented migrants to deter illegal immigration. Immigration quotas and the provisions of migrants' rights can be policy substitutes in this case. When trade is closed, firms in the non-tradable sector is indifferent about immigration policy as long as they make profit. If they cannot generate enough profit, they may seek support from policymakers through immigration or tax cuts.

Firms in the non-tradable sector, however, benefit from currency appreciation when trade is open, since they can enjoy cheap imports by taking advantage of a higher exchange rate.¹⁴ Therefore, their support for open immigration decreases as trade openness increases. When trade is completely open, currency appreciation exposes exporters and

¹²Note that policymakers cannot help firms in the non-tradable sector by providing protectionist measures or tax subsidies for moving abroad.

¹³Hanson and Spilimbergo (1999) show that the effect of devaluation of the Mexican peso (relative appreciation of the U.S. dollar) on the volume of illegal immigration is quite fast for Mexico, with a finding that a devaluation of the Mexican peso by 10 percent vis-à-vis the U.S. dollars increases the border apprehensions by 6 to 8 percent, *ceteris paribus*.

¹⁴Opening up trade alone benefits firms in the non-tradable sector. These firms benefit even further from open trade when the exchange rate is overvalued.

import-competing firms to the greatest level of international competition. Assuming cutting business taxes is less costly than admitting immigrants in terms of political, cultural and fiscal costs.¹⁵ these firms will ask for tax cuts to the point policymakers are no longer able to provide further cuts. Afterwards, labor-intensive firms lobby for more migrants and/or trade protection, while capital-intensive firms only lobby for trade protection. If policymakers cannot provide trade protection, capital-intensive firms that are mobile will move overseas. On the other hand, labor-intensive firms are likely to stay as long as policymakers can supply migrants by opening up immigration even in the absence of trade protection.

The paper continues as follows. First, I present a detailed overview of migrants' rights to review policy channels through which policymakers can influence migration flows. Second, I argue that the provision of migrants' rights and immigration quotas serve different policy objectives and that the existing literature fails to recognize this. Third, since my argument has many moving parts, I develop a formal model to specify the conditions under which firms lobby for more migrants due to an exchange rate shock while treating both exchange rate shocks and trade openness as exogenous variables. Then, I present some empirical facts that the exchange rate is one of the most important factors for cross-border migration flows. Lastly, I conclude this paper with my own future research plans for empirical analysis.

¹⁵There is a vast literature on these costs. Hatton and Williamson (2005a); Hatton and Williamson (2005b) show that immigration may increase income inequality because land and capital owners benefit from immigration-induced labor supply growth while workers lose. Timmer and Williamson (1998) demonstrates that there was a causal link between rising inequality and rising barriers to immigration in rich, labor-scarce countries. See Hainmueller and Hiscox (2007); Hainmueller and Hiscox (2010) for cultural costs of immigration. Lastly, see Hanson, Scheve, and Slaughter (2007); Neuman (1993) for fiscal costs.

Migrants' Rights

By migrants, I mean individuals from foreign countries who reside in host countries for temporary employment (both short-term and long-term). In the U.S., green card holders (permanents residents) do not fall into the definition of migrants, as they are expected to maintain permanent residency within the U.S. and enjoy most of the rights of U.S. citizens, except the right to vote. Foreign students are also excluded from the pool of migrants since their opportunities for temporary employment are heavily restricted. The definition, however, includes both documented and undocumented migrants as long as they reside in host countries for temporary employment. I emphasize temporary employment in defining migrants for two reasons. First, permanent migrants such as green card holders in the U.S. receive exclusive rights from policymakers because they are potential voters through naturalization. The provision of rights' to such immigrants is not puzzling, but straightforward from the perspective of vote-maximizing politicians. Second, recent studies demonstrate that immigration policy and international migration are influenced by firm demands for labor and various globalizing forces including capital mobility and trade openness.¹⁶ Policymakers around the globe have been paying close attention to temporary migration as a means to increase labor market flexibility.¹⁷

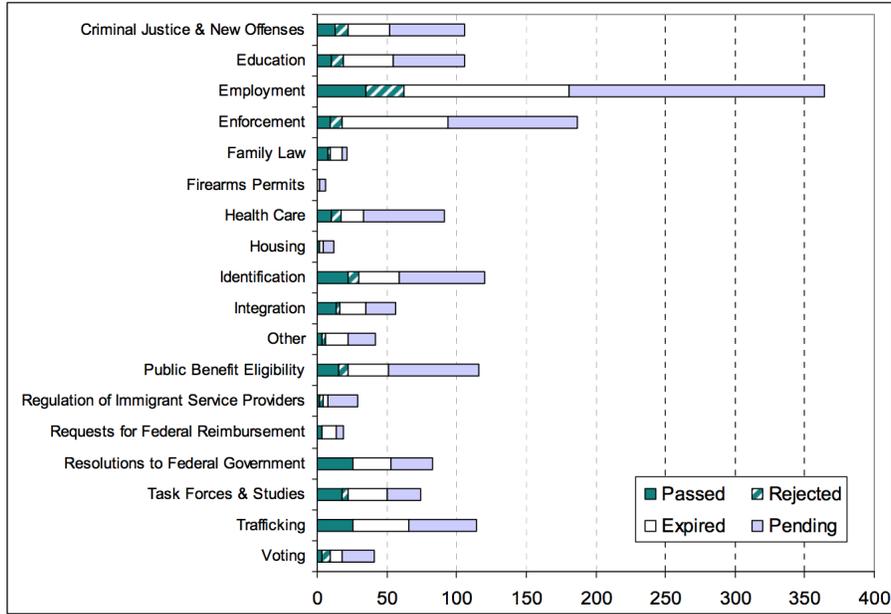
While migrants' rights include constitutional rights such as rights to life, liberty and property, they are not limited to basic rights. More broadly, migrants are often given more tangible rights that improve their living standards significantly. These rights can be understood as access to public goods such as education, employment, housing and health care. Figure 1 summarizes the number of state legislative measures in the United States,

¹⁶See Stalker (2000) for the impact of globalization on international migration. See Peters (2011) for the determinants of national immigration policy.

¹⁷For instance, Canada's Seasonal Agricultural Worker Program (SAWP) is an institutionalized policy instrument that matches workers from Mexico and the Caribbean countries with Canadian farmers.

introduced by subject area and status at the end of 2007.¹⁸ The U.S. is not alone in

Figure 1: Number of State Legislative Measures Introduced by Subject Area and Status at End of 2007

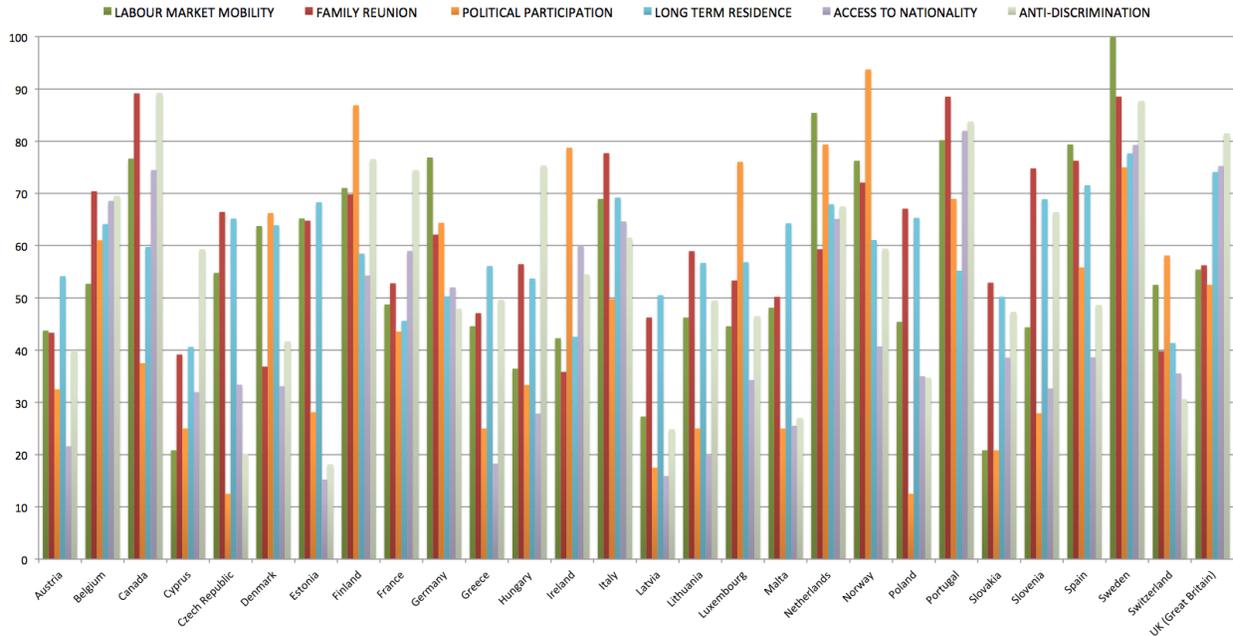


providing these statutory rights to migrants. According to the Migration Integration Policy Index (MIPEX), European countries exhibit a wide variation in providing rights to migrants, in terms of labor market mobility, the right to family reunion, and political participation.¹⁹ Figure 2 shows this variation across 28 European countries in 2007. Similar to MPI, MIPEX contains basic rights such as access to nationality and family reunion as well as rights that concern migrants' employment and political participation. However, since MIPEX assesses all relevant policy instruments including both administrative and legislative, it is more comprehensive than MPI's database which only keeps track of legislative bills.

¹⁸See Laglagaron et al. (2008) for detailed information on the database of 2007 state immigration legislation and the methodology.

¹⁹MIPEX uses 148 policy indicators to create a database that measures governments' commitment in guaranteeing equal rights and migrants' opportunities to participate in society.

Figure 2: Migration Integration Policy Index in 2007



Policy Instruments

The categories of migrants' rights in MPI and MIPEX show that migrants' rights differ in their scope. In most liberal democracies, basic rights to life, liberty and property are guaranteed for all individuals regardless of their citizenship status. For instance, while the U.S. Constitution gives the right to vote and the right to run for federal elective office exclusively to citizens, all other rights are written without restrictions. Moreover, Title VII of the Civil Rights Act of 1964 prohibits discrimination in employment on the basis of sex, race, color, national origin, and religion in the U.S. The Supreme Court ruled that Title VII applies to non-citizens in *Espinoza vs. Farah Manufacturing Company*. Migrants, however, have limited access to public goods in most cases. For instance, migrants may not be fully eligible for federal support for education and welfare benefits in the U.S.

Secondly, migrants' rights vary in their policy origin. All three branches of have policy

autonomy over migrants. The executive branch can implement policies that affect living standards of migrants on a daily basis. Examples include raiding work places that employ undocumented immigrants and creating administrative barriers to public goods. The legislative branch can establish statutes by passing laws that expand or restrict migrants' rights. In addition, the judicial branch can offer interpretations of the constitution and amendments. Depending on which branch implements policy, the "strength" of migrants' rights also varies. Cox and Posner (2009, p 3.) defines the strength of migrants' rights as "the ease with which the government can change them." The executive branch's policy can change very easily, while judicial interpretations tend to be more sticky. Legislative bills fall somewhere between the executive and the judicial in terms of strength.

Thirdly, migrants' rights vary in their policy implementation, or more precisely, whether it is unilateral or bilateral. Among bilateral labor migration treaties (BLMT), the French type, used by Western European countries to attract temporary migrants, typically contained detailed policy provisions on working conditions and wages including a preferred exchange rate and welfare benefits (Peters, 2011). Unlike unilateral policies that target existing migrants regardless of nationality, BLMTs apply only to migrants from the sending country who signs a treaty with the receiving country. The provision of migrants' rights in BLMTs has not received much scholarly attention. But, it is important to note that BLMTs remain a feasible policy option for politicians in attracting temporary migrant workers.

Existing Theories of Immigration Policy

While the study of migration has become increasingly popular among political scientists recently, it is still unclear why policymakers use different types of immigration policy. Government has two policy channels through which they regulate immigration. First,

policymakers can restrict borders. Opening or closing legal immigration is a way to regulate immigration *inflow* under the assumption that the number of immigrants the government is willing to admit is less than the number of immigrants who desire to enter. Another way to restrict borders is controlling illegal immigration by increasing border patrolling forces. Second, policymakers can either expand or restrict migrants' rights to control *both* inflow and outflow of migrants. Policymakers may want to expand the rights of migrants in order to attract migrants if there is an insufficient supply of migrant workers, to meet the demand in the economy. On the other hand, they may want to restrict the rights of migrants in order to discourage potential migrants from entering and encourage existing migrants to return home.

These policy instruments serve specific purposes under different circumstances, but it is unclear what factors shape policymakers' preferences over immigration. As flows of migrants have deterministic effects on the labor market, native workers and firms may have opposing views towards immigration. Native workers may dislike migrant workers for cultural and economic reasons (Freeman, 1995; Zolberg, 1989). They may view immigrants as a threat to their heritage and culture. In addition, immigrants compete with a sub-population of native workers in labor-intensive industries. Firms, however, tend to have a strong preference for more workers for the wage effect of immigration.

Firms and Economic Globalization

Peters (2011) argues that open immigration policy can help firms cut production costs by bringing down the wage level. According to the Stolper-Samuelson model, free trade benefits the abundant factor, while hurting the scarce factor. In developed countries where capital is abundant and labor is scarce, labor-intensive import-competing firms face increasing pressure from foreign competitors under free trade. Support for open

immigration increases initially in response to increasing trade openness, as firms seek ways to cut down their production costs when trade is somewhat open. But, as trade opens up even more, policymakers' tax subsidies or open immigration will not be sufficient keep firms alive. Mobile firms will move abroad, while less mobile firms will perish in the domestic market.

The author's empirical analysis casts doubt on some of the alternative explanations of immigration policy, including states' fixed national identities towards immigration and the rise of nativism. The role of various interest groups including existing immigrants is considered as well. The theory of firm mobility, however, has two major flaws. First, the core question of the paper is about why states open or close borders at different times. Given the question, the author's decision to include migrants' rights as a dimension of immigration policy, the dependent variable is very puzzling. Policymakers provide rights to migrants in order to keep existing migrants and to attract potential migrants. If there is an abundant supply of potential migrant workers, policymakers do not have an incentive to provide rights to migrants even if they wanted to increase the labor supply. They would just simply open up immigration.

Secondly, the formal model presented in the paper treats labor mobility as an exclusively policy-driven consequence of legal immigration. In other words, the model assumes that there is always an abundant supply of migrant workers who desire to immigrate. Yet, the supply of migrant workers is only partially determined by legal immigration policies which target entry, not exit. Migrant workers have a credible exit option if economic circumstances are detrimental to their earnings in host countries. These adverse economic conditions may include high unemployment rates, rising inflation and other economic downturns caused by cyclical recessions. When these conditions persist, existing migrant workers are inclined to leave host countries while potential migrant workers are deterred to immigrate in the first place. These two flaws, one being empirical

and the other being theoretical appear contradictory to each other. The empirical strategy of using migrants' rights as a dimension of immigration policy while assuming an abundant supply of immigrants does not make much sense.

Does this imply that policymakers are more likely to grant rights to migrant workers during economically challenging times? This seems counter-intuitive since nation-wide economic downturns not only affect migrant workers' wealth, but also everyone else in host countries. In other words, it is not only unnecessary, but also politically risky for governments to supply labor when unemployment rates are high. Then, what are the circumstances under which migrant workers have a less incentive to stay in or to emigrate to host countries, while governments in host countries are desperate to tackle labor shortages in their economies?

Migrants' Rights, Migration Flows and Firms

Using a new data set on the quality of political institutions covering the 13 British American colonies, Nikolova (2012) shows that "a 10 percentage point decrease in the scarcity of labour increases the strictness of the suffrage by over 8 percent in the short run, and by close to 20 percent in the long run." The American South experienced labor shortages due to the tropical climate and devastating diseases in the absence of slavery. Offering high wages to potential immigrants did not solve the problem since workers were afraid that their employers would renege on the wage commitment after their arrival. Due to high trans-Atlantic transportation costs, workers were hesitant to emigrate from Europe to the New World. Therefore, it was necessary for elites to alter political institutions by offering British immigrants suffrage which could be used as a political tool to maintain the wage commitment. But, can this theory explain the provision of migrants' rights in the modern era? Decreasing transportation costs and increasing technologies to control diseases and climate-related problems make this theory

seem inadequate to explain the provision of migrants' rights in today's world. Then, what factors affect migrants' decision to migrate or return to their home countries?

Yang (2006) and Yang (2008) examine the relationship between exchange rate shocks and return migration in the Philippines. Yang (2008) finds that a 10 percent increase in the peso/\$ exchange rate (the peso depreciation) increases remittances in pesos by 6 percent. Currency depreciation, therefore, affects all firms whose labor cost depends on migration flows. While there are many factors that influence migrants' location decisions, changes in the exchange rate level are one of the most important factors for whether migrants stay in or leave the host country.

Import-competing firms and exporters tend to gain a price advantage from exchange rate depreciation since goods they produce become inexpensive relative to comparable foreign goods. The demand for their goods relative to comparable imports will therefore increase. On the other hand, their production costs rise if return migration shrinks the labor supply. These two effects may offset each other, making import-competing firms and exporters indifferent about the exchange rate policy. Firms in the service sector may lobby for immigration policies as well, if return migration has an impact big enough to interfere with their daily business operations. Their support for migrants' rights will be higher because they do not gain price competitiveness from currency depreciation.

As firms tend to be a strong interest group, policymakers may respond to their demands in three different ways. First, policymakers may attempt to cut business taxes to lower firms' production costs. Second, they can use protectionist measures to shield firms from international competitors. Third, policymakers can use immigration policies to supply more migrants to firms. I develop a formal model to show that under currency depreciation, firms are highly likely to lobby for the provision of rights, but are less likely to demand trade protection. Under currency appreciation, firms do not always lobby for trade protection. Labor-intensive firms can be kept content through more open immigration. Capital-intensive

firms will lobby for trade protection regardless of the level of immigration openness.

Exchange Rates, Firm Preferences and Policymakers

The model is based on the game that induces strategic behavior between firms and the policymaker over immigration policy in Peters (2011).²⁰ I assume closed trade and mobile capital in the base model. As an extension, I consider open trade and mobile capital. Capital mobility or the absence of capital controls is an important assumption of the model for three reasons. First, migrants send remittances to their home countries without restrictions. Second, capital mobility allows the host country's currency to fluctuate relative to all or some other currencies. Third, international arbitrage in the foreign exchange market makes sure that when the value of one currency changes to another (i.e. changes in the monetary base), it also changes to all other currencies.

The second assumption states that the host country's currency is not pegged to any of her major trading partners or suppliers of labor.²¹ This simplifies the model to use one common exchange rate shock instead of differentiating between the migration-weighted real exchange rate and the real effective exchange rate.²² This assumption is not always valid. Governments in migrant-sending countries have a tendency to fix the exchange rate since remittances from migrants provide a significant source of income for sending countries (Singer, 2010). Then, the receiving state enjoys a stable migration-weighted (nominal) exchange rate, while it still may have to deal with varying levels of the real effective exchange rate.

Exchange rate shocks, however, can still occur even if the currency of the sending state

²⁰This model is based on Grossman and Helpman (1994).

²¹If all currencies are strictly anchored to a common currency such as the U.S. dollar or gold, then exchange rate shocks do not occur. Yet, this is certainly not the case in the post-Bretton Woods era. Even during the Bretton Woods, some countries were allowed or even pressured to revalue their currencies.

²²The migration-weighted real exchange rate is a measure of exchange rates by using bilateral nominal exchange rates weighted by shares of migrants and adjusted for the effects of inflation. The real effective exchange rate is a measure of exchange rates by using bilateral nominal exchange rates weighted by relative trade balances and adjusted for the effects of inflation.

is pegged to a major currency. For instance, if a sending state fixes its currency to the U.S. dollar and sends its migrants to other countries whose currencies are allowed to vary relative to the U.S. dollar, then the sending state's migrants are not immune to exchange rate shocks in these countries. I relax the assumption of one common exchange rate shock by using a migration-weighted real exchange rate and a real effective exchange rate later to account for capital controls, the sending state's currency depreciation against all other currencies, and the presence of fixed exchange rate regimes.

It is noteworthy to mention that I assume exchange rate shocks and trade openness are exogenous in the model. I seek to provide theoretical predictions of firm preferences for given directions of exchange rate shocks and levels of trade openness. In addition, exchange rate shocks are assumed to be significant enough to cause migrants' cross-border movements. In other words, migrants are not relevant actors in the game. Rather, their actions serve as a secondary exogenous shock caused by the exchange rate shock in the model. This is an empirical question in the economic literature on international migration. I will justify this assumption by providing a brief literature review.

The game continues as follows. First, all actors observe an exchange rate shock, either depreciation ($0 < e < 1$) or appreciation ($1 < e$) of the currency of the country where migrants, firms, and policymakers belong. Firms are fully aware of how migrants may respond to the exchange rate shock and offer the policymaker contribution schedules that lay out the tax rate the firm will pay for open immigration, ρ and migrants' rights σ , which the policymaker could provide. As ρ increases, the number of immigrants in the host country increases through legal immigration. As σ increases, a larger number of migrants are attracted to the host country. After observing firms' contribution schedules, the policymaker chooses ρ or σ to maximize her utility function, $G(\cdot)$.²³ Firms then maximize their profits,

²³One of the main objectives of this paper is to show that immigration quotas and the provision of migrants are used to accomplish different policy objectives. Introducing exchange rate variation is one way to accomplish this objective.

π_i .

Solution Concept

Every firm makes a truthful contribution schedule, defined as a “contribution schedule that everywhere reflects the true preferences” of the firm (Grossman and Helpman, 1994, p. 840). And, the policymaker’s policy choice is immune to time-inconsistency problems. In other words, a policy choice honestly reflects contribution schedules given the constraints of the policymaker. The set of contribution schedules and a policy choice (ρ, σ) is a subgame-perfect Nash equilibrium of the game if and only if (a) a contribution schedule offered by every firm is feasible,²⁴ (b) the policymaker sets the policy to maximize her own welfare, (c) for every firm, the policy outcome must maximize the joint welfare of the firm and the policymaker, and (d) for every firm, there must exist a policy that elicits a contribution of zero from firm i which the government values as equally as the equilibrium policy (p. 10 Bernheim and Whinston, 1986; Grossman and Helpman, 1994, p. 839, 845).

The Policymaker

Following Peters (2011), the policymaker maximizes her utility function to stay in office by opening or providing rights to migrants,

$$G(w, \tau, \rho, \sigma) = \alpha_1 w(\rho, \sigma) + \alpha_2 \sum_{i \in F} \tau_i(\rho, \sigma) + \alpha_3 H(\rho, \sigma), \quad (1)$$

where $\sum_{i \in F} \tau_i(\rho, \sigma)$ is the total tax revenue, including contributions made by firms ranging from i to F , and $H(\rho, \sigma)$ is a function that measures the policymaker’s fiscal and political costs of making a policy choice. Opening immigration or providing rights to migrants can be unpopular among native workers, as they have cultural, fiscal, and political costs. $H(\rho, \sigma)$ is

²⁴For instance, contributions must be non-negative and no greater than firms’ income.

a decreasing function of ρ and σ . The policymaker places $\alpha_{k \in [1,3]}$ on each term and $\sum_k^n \alpha_k = 1$ implying $\alpha_3 = 1 - \alpha_1 - \alpha_2$. Since $w(\rho, \sigma)$ is a decreasing function of ρ and σ , α_1 measures how concerned the policymaker is about the overall wage level in the economy. As the political strength of labor increases, the weight the policymaker places on the wage level, α_1 is likely to increase as well. The second term, $\tau_i(\rho, \sigma)$ is an increasing function of ρ and σ , since firms are willing to make more contributions as the supply of migrants increases in the country.

For now, assume that ρ and σ are policy substitutes; the policymaker must decide between opening immigration and providing rights. The first order conditions for the policymaker with respect to ρ and σ are

$$\alpha_2 \sum_{i \in F} \frac{\partial \tau_i}{\partial \rho} = -\alpha_1 \frac{\partial w}{\partial \rho} - \alpha_3 \frac{\partial H}{\partial \rho} \quad (2)$$

$$\alpha_2 \sum_{i \in F} \frac{\partial \tau_i}{\partial \sigma} = -\alpha_1 \frac{\partial w}{\partial \sigma} - \alpha_3 \frac{\partial H}{\partial \sigma} \quad (3)$$

Since both $w(\cdot)$ and $H(\cdot)$ are decreasing functions of ρ and σ , the derivatives of these functions with respect to ρ and σ are negative. In order to implement pro-immigration policy, the policymaker needs more tax revenue as the marginal effects of immigration on her constraints become stronger.

Migrant Workers

There is a continuum of migrant workers, indexed by i and uniformly distributed on the unit interval $[0, 1]$. After observing an exchange rate shock, migrant i makes a cross-border labor decision. Existing migrants in the host country decide between staying and returning, while potential migrants decide between staying and entering the host country. Migrant i 's utility function by staying in the host country is

$$M_i = \frac{w(\rho, \sigma)(\alpha_i)e + w(\rho, \sigma)(1 - \alpha_i) + \phi_i(\sigma)}{1 - \delta_i} - C_i^I - \left[\frac{w^* + \psi_i}{1 - \delta_i} - C_i^R \right], \quad (4)$$

where $w(\rho, \sigma)$ is the wage stream she receives or would receive in the host country; w^* is the wage stream she receives or would receive in the home country; $0 < \alpha_i < 1$ is the share of her income as remittances; $\phi(\sigma)$ is the sub-utility function of how much she values the policymakers' provision of rights in the host country, and ψ_i is the non-wage utility she derives from staying in her home country, including being with her family, cultural security, and any government benefits she might receive from the government of the home country. C_i^I and C_i^R indicate the cost of immigrating and returning home, respectively. C_i^I is zero if migrant i already resides in the host country. C_i^R is zero if migrant i is a potential migrant deciding between emigrating and staying in the home country. Except for one-time costs of relocating, C_i^I and C_i^R , all sub-utility functions are divided by $(1 - \delta_i)$ to represent the current and discounted values of all future income and rights. Rearranging the terms, the following expression can be obtained,

$$M_i = \frac{w(\rho, \sigma)[\alpha_i(e - 1) + 1] + \phi_i(\sigma) - \psi_i}{1 - \delta_i} - C_i^I + C_i^R. \quad (5)$$

Migrants make the following decisions,

$$M_i \begin{cases} > 0 & : \text{Migrant } i \text{ stays in or immigrates to the host country.} \\ = 0 & : \text{Migrant } i \text{ is indifferent.} \\ < 0 & : \text{Migrant } i \text{ stays in or returns to the home country.} \end{cases}$$

Firms

When trade is closed, firms use domestic inputs to produce non-tradable goods. I assume that a firm faces competitive factor, labor and goods markets; a firm is neither a monopsonist nor a monopolist. Firm i 's basic profit function is given by

$$\pi_i = \frac{p_i q_i}{e} - r(1 - \alpha_i)K_i - \frac{r(\alpha_i)K_i}{e} - w(\rho, \sigma)L_i - \tau_i(\rho, \sigma), \quad (6)$$

where $q_i = f_i(K_i, L_i)$, the quantity of production as a function of two inputs, factor (K) and labor (L) with factor prices of r and $w(\rho, \sigma)$, respectively; α_i is the proportion of tradable inputs being used for production; and $\tau(\cdot)$ is the business tax rate plus the contribution the firm pays for a given immigration policy, ρ or σ . Under closed trade, the firm's profit function becomes

$$\pi_i = p_i q_i - r K_i - w(\rho, \sigma) L_i - \tau_i(\rho, \sigma), \quad (7)$$

where $q_i = f_i(K_i, L_i)$. Then, when the firm does not exit the market, the first order conditions with respect to ρ and σ are

$$-\frac{\partial w}{\partial \rho} L_i = \frac{\partial \tau_i}{\partial \rho} \quad (8)$$

$$-\frac{\partial w}{\partial \sigma} L_i = \frac{\partial \tau_i}{\partial \sigma} \quad (9)$$

Since $\frac{\partial w}{\partial \rho} < 0$ and $\frac{\partial w}{\partial \sigma} < 0$, the first order conditions imply that firms that employ more labor (L) are more likely to contribute for immigration policies.

After the policymaker decides on ρ and σ , the firm faces the following maximization problem:

$$\max_{K, L} p f_i(K_i, L_i) - r K_i - w(\rho, \sigma) L_i - \tau_i(\rho, \sigma) \quad (10)$$

Since this is an unconstrained multivariate optimization problem, I solve it by standard optimization techniques. The first order conditions of the problem are given by

$$p f_L(K, L) = w(\rho, \sigma) \quad (11)$$

$$p f_K(K, L) = r. \quad (12)$$

The conditions imply that firms equate value marginal product of each factor to its market price. The solution is the set of (unconditional) factor demand functions:

$$L_i^* = L^*(w(\rho, \sigma), r, p) \quad (13)$$

$$K_i^* = K^*(w(\rho, \sigma), r, p) \quad (14)$$

$$q_i^* = f(K^*, L^*) \quad (15)$$

and the dual profit function is

$$\pi_i^*(p, w(\rho, \sigma), r) = pq_i^* - w(\rho, \sigma)L_i^* - rK_i^* \quad (16)$$

According to Hotelling's lemma,²⁵ the following conditions hold:

$$q_i^* = \frac{\partial \pi_i^*}{\partial p} \quad (17)$$

$$L_i^* = -\frac{\partial \pi_i^*}{\partial w} \quad (18)$$

$$K_i^* = -\frac{\partial \pi_i^*}{\partial r} \quad (19)$$

Equation 18 implies that firms whose profit depends more on the wage are more labor intensive. Therefore, Equation 8, 9 and 18 together imply the first hypothesis.

HYPOTHESIS 1. Under closed trade, firms whose profit depends more on the wage level make larger contributions to the policymaker for pro-immigration policy.

²⁵See Hotelling, 1932.

Closed Trade and Mobile Capital

Having established the base model, I now assess the policies which different firms demand and how the policymaker responds to their contributions. I do not assume any particular characteristics of the economy. Rather, I provide an overview of firms that prefer immigration policy and firms that prefer other policy instruments.

Currency Depreciation under Closed Trade and Mobile Capital

Suppose that the wage level increased due to return migration preceded by currency depreciation. Existing migrants have left the host country, while the inflow of immigrants has decreased. Opening immigration does not bring more migrants. The policymaker must develop and implement policies that attract migrants. Knowing this, firms who want more migrants lobby for migrants' rights instead of open immigration given that they prefer immigration policy over other government transfers. First, they may ask for tax cuts, assuming that it is easier for the policymaker to cut business taxes. As e decreases 0 (severe depreciation), fiscal options for tax cuts will be exhausted. Then, firms ask for migrants' rights to bring down the wage level. Note that since trade is already closed, the policymaker cannot use trade protectionism to help firms. Therefore, their demand for migrants' rights increases, as e decreases.

HYPOTHESIS 2. As the magnitude of exchange rate depreciation increases under closed trade, the policymaker will be more likely to offer rights to migrants.

Combining Hypothesis 1 and 2, we can deduce the following hypothesis,

HYPOTHESIS 3. As the share of labor-intensive firms increases, exchange rate depreciation has a larger effect on the probability that the policymaker will offer more rights to

migrants.²⁶

Currency Appreciation under Closed Trade and Mobile Capital

Suppose that the wage level decreased due to more illegal migration preceded by currency appreciation. Existing migrants find staying in the host country more attractive, while the inflow of undocumented immigrants has increased. Restricting immigration does not reduce the number of migrants. The policymaker must develop and implement policies that discourage migrants from staying in or immigrating to the host country. Since firms enjoy an abundant supply of workers under currency appreciation, firms do not have any reason to support or oppose immigration. Policymakers do not get contributions from firms and implement policies that address the decreasing wage level to appease domestic workers. Therefore, the policymaker restricts the rights of migrants, as e increases under closed trade.

HYPOTHESIS 4. As the magnitude of exchange rate appreciation increases under closed trade, the policymaker will restrict rights to migrants.

Open Trade and Mobile Capital

In this section, I examine how open trade changes firm preferences over immigration policy under exchange rate appreciation or depreciation. Note that I cannot make comparative predictions of immigration policy while varying the levels of trade openness and exchange rate fluctuations at the same time. Trade openness causes some firms to perish and others to move overseas, resulting in different compositions of sectoral interests and firm characteristics.²⁷

²⁶Industry groups are assumed to exist exogenously or can be formed quickly when firms within each sector have an incentive to lobby.

²⁷Labor-intensive firms tend to disappear in the domestic market as trade openness exposes firms to the world prices lower than domestic prices under autarky.

So, I only make comparisons about firm preferences towards immigration under currency depreciation and appreciation when trade is open.

Currency Depreciation under Open Trade and Mobile Capital

Suppose that the wage level increased due to return migration preceded by currency depreciation. Existing migrants have left the host country, while the inflow of immigrants has decreased. Opening immigration does not bring more migrants; σ is the only feasible immigration policy with an effect on the wage level such that $w = w(\sigma)$. Firm i 's basic profit function is given by

$$\pi_i = \frac{p_i q_i}{e} - r(1 - \alpha_i)K_i - \frac{r(\alpha_i)K_i}{e} - w(\rho)L_i - \tau_i(\rho), \quad (20)$$

where $q_i = f_i(K_i, L_i)$. After the policymaker decides on σ , the firm faces the following maximization problem if it is in a tradable sector:

$$\max_{K,L} \frac{p_i f_i(K_i, L_i)}{e} - r(1 - \alpha_i)K_i - \frac{r(\alpha_i)K_i}{e} - w(\sigma)L_i - \tau_i(\sigma) \quad (21)$$

The first order conditions of the problem are given by

$$p^e f_L(K_i, L_i) = w(\sigma) \quad (22)$$

$$p^e f_K(K_i, L_i) = r(1 - \alpha_i) + r^e(\alpha_i), \quad (23)$$

where $p^e = p/e$ and $r^e = r/e$. Since an exchange rate depreciation is defined as $0 < e < 1$, $p^e > p$. Firms in tradable sectors increase their output prices up to the prices of comparable imports during an exchange rate depreciation; they gain price competitiveness. If firms use imports as production inputs, they have to pay a higher price, r^e during an exchange rate shock. Since $(1 - \alpha_i)$ is the share of non-tradable inputs, it is not affected by e .

The conditions imply that firms equate value marginal product of each factor to its market price. The solution is the set of (unconditional) factor demand functions:

$$L_i^* = L_i^*(w(\sigma), (1 - \alpha)r + (\alpha)r^e, p^e) \quad (24)$$

$$K_i^* = K_i^*(w(\sigma), (1 - \alpha)r + (\alpha)r^e, p^e) \quad (25)$$

$$q_i^* = f(K_i^*, L_i^*) \quad (26)$$

and the dual profit function is

$$\pi_i^*(p, w(\sigma), (1 - \alpha_i)r + (\alpha_i)r^e) = pq_i^* - w(\sigma)L_i^* - rK_i^*, \quad (27)$$

and the following conditions hold:

$$q_i^* = \frac{\partial \pi^*}{\partial p^e} \quad (28)$$

$$L_i^* = -\frac{\partial \pi^*}{\partial w} \quad (29)$$

$$K_i^* = -\frac{\partial \pi^*}{\partial r}(1 - \alpha_i) - \frac{\partial \pi^*}{\partial r^e}(\alpha_i) \quad (30)$$

Assuming that firms gain an overall price competitiveness from an exchange rate depreciation, it provides some shield for firms from a labor shortage caused by exchange rate depreciation. I expect exporters and import-competing firms to be indifferent about return migration since they can simply raise prices. Firms in the non-tradable sector are, however, hit hard by exchange rate depreciation for three reasons: (1) the wage level goes up, (2) the prices of imports increase, and (3) they do not gain price competitiveness from currency depreciation because they do not export. Some predictions can be made about their lobbying behavior. First, firms in the non-tradable sector will ask for tax cuts first. But, once these fiscal options are exhausted, they must seek more labor. This is because

trade protectionism is unavailable to firms in the non-tradable sector. Moreover, since they are assumed to be immobile, they cannot move overseas even if they cannot make profit. They must exit the market if they fail to make profit. Their mortality rate depends on the magnitude of the exchange rate shock if they are labor-intensive.

HYPOTHESIS 5. As the magnitude of exchange rate depreciation increases under open trade, labor-intensive firms in the non-tradable sector demand the provision of migrants' rights.

HYPOTHESIS 6. As the share of non-tradable labor-intensive firms increases, exchange rate depreciation has a larger effect on the probability that the policymaker will offer more rights to migrants.

Currency Appreciation under Open Trade and Mobile Capital

Suppose that the wage level decreased due to more illegal migration preceded by currency appreciation. Existing migrants find staying in the host country more attractive, while the inflow of undocumented immigrants has increased. Restricting immigration does not reduce the number of migrants. Exporters and import-competing firms, however, face fierce international competition because of currency appreciation; the world prices of their goods decrease because of the differences of exchange rates. These firms in this particular case have a number of political options. First, they can try to cut production costs by asking for tax cuts or more labor. Second, they can ask for trade protectionism. Third, they can move their plants overseas.

When tax cuts become fiscally infeasible, capital-intensive firms ask for trade protection, while labor-intensive firms can ask for both trade protection and more open immigration. If labor-intensive firms can easily receive more immigrants, their demand for

trade protection decreases. If the policymaker cannot provide more migrants given her constraints, both capital-intensive firms and labor-intensive firms ask for trade protection. If the policymaker can easily provide more migrants to labor-intensive firms, capital-intensive firms must fight for trade protection by themselves. If all else fails, firms perish or move overseas if they could.

Firms in the non-tradable sector certainly oppose trade protection while they may be indifferent about immigration. Currency appreciation brings more workers and cheaper goods to these firms under trade openness. The policymaker’s protectionist measures can inhibit their ability to take advantage of open trade and the overvalued currency. Table 1 summarizes how firms would react to currency appreciation under open trade depending on the tradability of their goods and factor intensity. The following hypotheses are relevant

Table 1: Firms’ Policy Preferences under Open Trade/Currency Appreciation

			Trade Protection	Open Immigration
Tradable	Capital-Intensive	Immobile	High	Low
		Mobile	Low	Low
	Labor-Intensive	Immobile	High	High
		Mobile	Low	Low
Non-Tradable	Capital-Intensive		Low	Indifferent/Low
	Labor-Intensive		Low	Indifferent/Low

to currency appreciation under open trade and mobile capital.

HYPOTHESIS 7. If the ratio of firms in the tradable sector to firms in the non-tradable sectors is high in the economy, *and* if the ratio of capital-intensive firms to labor-intensive firms is high, the policymaker restricts the rights of migrants and immigration remains closed.

HYPOTHESIS 8. If the ratio of firms in the tradable sector to firms in the non-tradable sectors is high in the economy, *and* if the ratio of capital-intensive firms to labor-intensive

firms is low, the policymaker prefers to supply more migrants as long as it is fiscally and politically easier than providing protectionist measures.

The most interesting feature of this scenario is that policymakers can either loosen her restrictions on undocumented immigrants (σ), or open immigration (ρ) while remaining strict on illegal immigration. In other words, σ and ρ become policy substitutes. The policymaker may choose to tolerate illegal immigration if firms lobby for low-skill migrants and if it is less politically and fiscally costly than opening up immigration.²⁸ The policymaker, however, may choose to open up immigration instead, if firms lobby for medium- or high-skill migrants, while maintaining harsh policies on illegal immigration.

Multiple Exchange Rate Shocks

This section extends the theoretical implications of the model by introducing two different exchange rates under open trade. The model assumes capital mobility to the degree that exchange rate shocks occur. First, firms are exposed to changes in wages as the migration-weighted real exchange rate (MRER) varies. Second, firms are exposed to changes in prices as the real effective exchange rate (REER) varies. Consider the first order conditions of the firm's maximization problem under the depreciation of the migration-weighted real exchange rate and the appreciation of the real effective exchange rate.

$$p^e f_L(K_i, L_i) = w(\sigma) \tag{31}$$

$$p^e f_K(K_i, L_i) = r(1 - \alpha_i) + r^e(\alpha_i), \tag{32}$$

²⁸For instance, executive policies on undocumented immigrants can be less transparent than legislative measures that manage legal immigration quotas.

where $p^e = p/e$ and $r^e = r/e$. Since the real effective exchange rate appreciation is defined as $e > 1$, $p^e < p$ where p is the world price of goods without depreciation or appreciation. Firms in tradable sectors lose price competitiveness. In addition, without the provision of migrants' rights, $w(\sigma)$ goes up because the migration-weighted real exchange rate decreases; migrants' return migration increases the wage level. The conditions of Equation 31 imply that it becomes increasingly difficult for firms to equate value marginal product of labor to its market price. Without any forms of protection, firms must increase its labor productivity, $f_L(K_i, L_i)$ to the greatest extent.

If firms use imports as production inputs, they pay a lower price, r^e during an exchange rate shock. Since $(1 - \alpha_i)$ is the share of non-tradable inputs, it is not affected by e . Labor-intensive exporters and import-competing firms support both the provision of migrants' rights and trade protection because they lose from two exchange rate shocks. Capital-intensive exporters and import-competing firms support trade protection. Labor-intensive firms in the non-tradable sector support migrants' rights, but not trade protection. Capital-intensive firms in the non-tradable sector support neither trade protection nor migrants' rights.

Similar predictions can be made about other cases. The model and its extensions have some major conclusions. First, firms' vulnerabilities to exchange rate shocks come from both the real effective exchange rate and the migration-weighted real exchange rate in migrant-sending states.²⁹ Second, the dynamics of these two exchange rates suggest a more detailed version of the sectoral classification of exchange-rate preferences in Frieden (1991). Third, short-term immigration policies are likely to depend heavily on exchange rate levels and can serve as substitutes to trade protection during exchange rate shocks. The model also has some limitations, as it cannot make any dynamic predictions about how

²⁹The migration-weighted real exchange rate is a composite measure of bilateral exchange rates between the sending state and receiving states weighted by migrant stocks of individuals from the sending state. The measure is deflated by the CPI in the home country.

overvalued or undervalued fixed exchange rate regimes affect the policymaker's incentive to provide protectionist measures, to open immigration or to float the exchange rate.

The most striking observation of exchange rates in the post-Bretton Woods era is how differently MRER and REER move in relation to each other (see Appendix). While MRER is rising in OECD countries, REER shows very divergent movements. The correlation between REER and MRER in the whole sample is nearly zero and is not statistically significant. Increasing MRER implies more migrants are seeking ways to earn income outside of their home countries. Yet, increasing trade openness drives labor-intensive firms out of developed countries. Changing levels of REER can serve as an intervening variable to accelerate or delay the causal relationship between trade openness and more restrictive immigration policy in the developed world.

Exchange Rates and Cross-Border Labor Movements

“The monthly pay of most of the Middle East jobs is measly—\$250 for hotel workers or \$300 for labourers. But, because of the weak US dollar, the peso value of their salaries has been eroded by 20–25 percent since 2000 and that has had a big impact on one of the worlds biggest exporters of labour” (Roel Lindingin, “Exchange Rate Keeps Filipinos from Working Abroad,” Financial Times, November 16, 2007).

In the early 2000s, Poles and Filipinos have returned to their countries due to exchange rate shocks. Staying in foreign countries became less attractive and even economically costly because of the unfavorable exchange rate levels. The United Kingdom was heavily affected by the appreciation of the Philippine peso, as British healthcare providers were losing the supply of Filipino nurses. OECD reports that “[b]etween April 2002 and March 2003, 43% of all new U.K. professional registrations for overseas nurses were from the Philippines (5,594).”³⁰. About 200,000 poles returned home in 2008, including teachers, hotel managers, vets and

³⁰OECD, 2004, p. 138.

bankers.³¹ The service sector in the United Kingdom experienced severe shortages of labor. While these accounts are anecdotal, a recent study demonstrates that the exchange rate has a substantial effect on where people move and wages in receiving and sending states.

Based on a sample of 66 countries from 1981 to 2005, Mishra and Spilimbergo (2011) find that a 1 percent change in the exchange rate leads to a .15 percent change in wages in sending countries with high barriers to external labor mobility, while it is .4 percent in sending countries with low barriers to mobility (p. 57). Moreover, “a 1 percent depreciation of the real exchange rate is associated with a 0.5–1.2 percent increase in the emigration rate” (p. 79). While it is unclear if the exchange rate affects wages in receiving countries without considering immigration policy, migrants consider the exchange rate seriously in deciding where and when to emigrate. Furthermore, their migration decisions have substantial effects on wages in both sending countries and receiving countries.

Conclusion and Future Research Plans

The model suggests that whether trade is open or not, labor-intensive firms in the non-tradable sector will demand policy instruments that attract migrant workers under currency depreciation. Labor-intensive firms in the tradable sector lobby for both trade protection and open immigration under currency appreciation. On the other hand, policymakers are highly likely to implement policies that deter illegal immigration under currency depreciation. Yet, what does the model say about exchange rates, labor mobility and immigration policies in the long run?

For many OECD countries, the migration-weighted real exchange rate exceeded the real effective exchange rate during the Uruguay Round between 1986 and 1994. During this leap to world-wide trade openness, MRER increased above the level of REER, implying

³¹David Harrison (February 21, 2009). *UK Poles Return Home*. The Telegraph. URL: <http://www.telegraph.co.uk/news/worldnews/europe/poland/4742214/UK-Poles-return-home.html>

emigration from these countries became much less attractive for citizens residing in the OECD countries. In the meantime, top migrant-sending states also experienced currency appreciation, which has made migration to wealthier countries much less attractive for their citizens. Currency appreciation in sending states is primarily due to remittances flows. Since international migration tends to be asymmetric, the currency value of the sending state vis-à-vis the receiving state's currency will rise as more remittances come into sending states.

As trade opens up during this turbulent period of exchange rates, policymakers have an option to use immigration policy to protect domestic industries. I expect that immigration policies before and after the Uruguay Round are very divergent, not only because of its effect on trade openness, but also due to the dynamics of MRER and REER. While migrants in poorer countries find international migration less attractive, the economic and political significance of labor-intensive firms in the non-tradable sector has been increasing in the OECD countries. These firms' political demand for migrants' rights in response to exchange rate shocks is likely to start a new era of migrants' rights in the twenty-first century. While some may say the provision of migrants' right is a rising norm in liberal democracies, my theory suggests this is indeed a political phenomenon.

An interesting place to start exploring the relationship between exchange rate, trade and immigration policies is the pre-1914 globalization during which the classical gold standard and international migration worked together to maintain the global price stability (Khoudour-Casteras, Forthcoming). During the *golden* era of globalization, "the monetary authorities committed themselves to fix the prices of their currencies in terms of a fixed weight of gold and to buy and sell gold freely in unlimited amounts" (Bordo, 1993, p. 160). Trade was relatively open compared to the Inter-War period, and the the number of international migrants soared during this time.

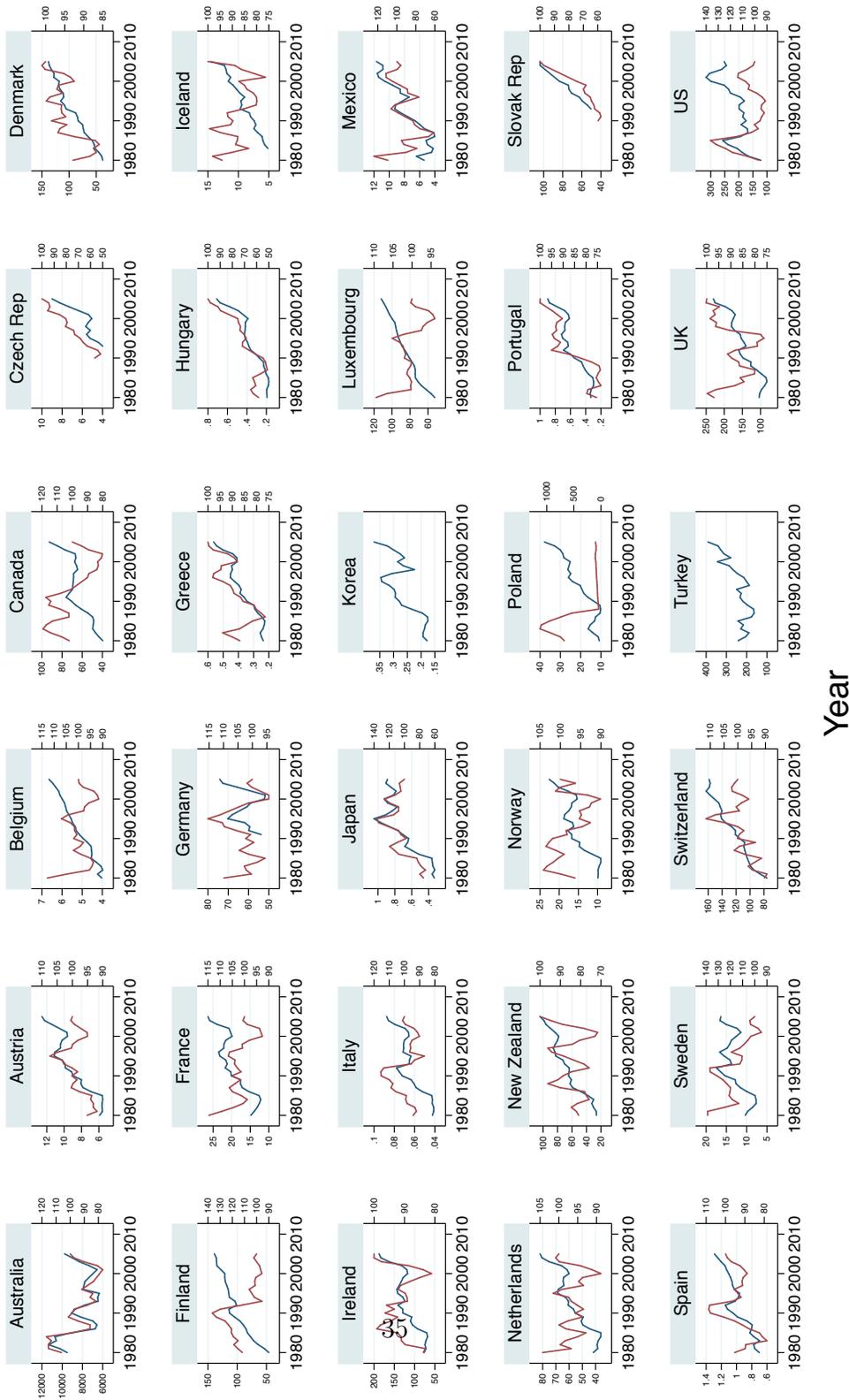
The Bretton Woods system, however, as a weak variant of the gold standard had

inherent design flaws such as adjustable pegs and the lack of confidence in the gold-dollar convertibility. Adjustable pegs were often used by member nations to mitigate balance-of-payment problems by depreciating the exchange rate against the U.S. dollar. It would be interesting to see if migration patterns were influenced by the use of adjustable pegs, and how this affected firms' demand for migrants' rights and policy responses to such demand through tax, trade, and immigration policy.

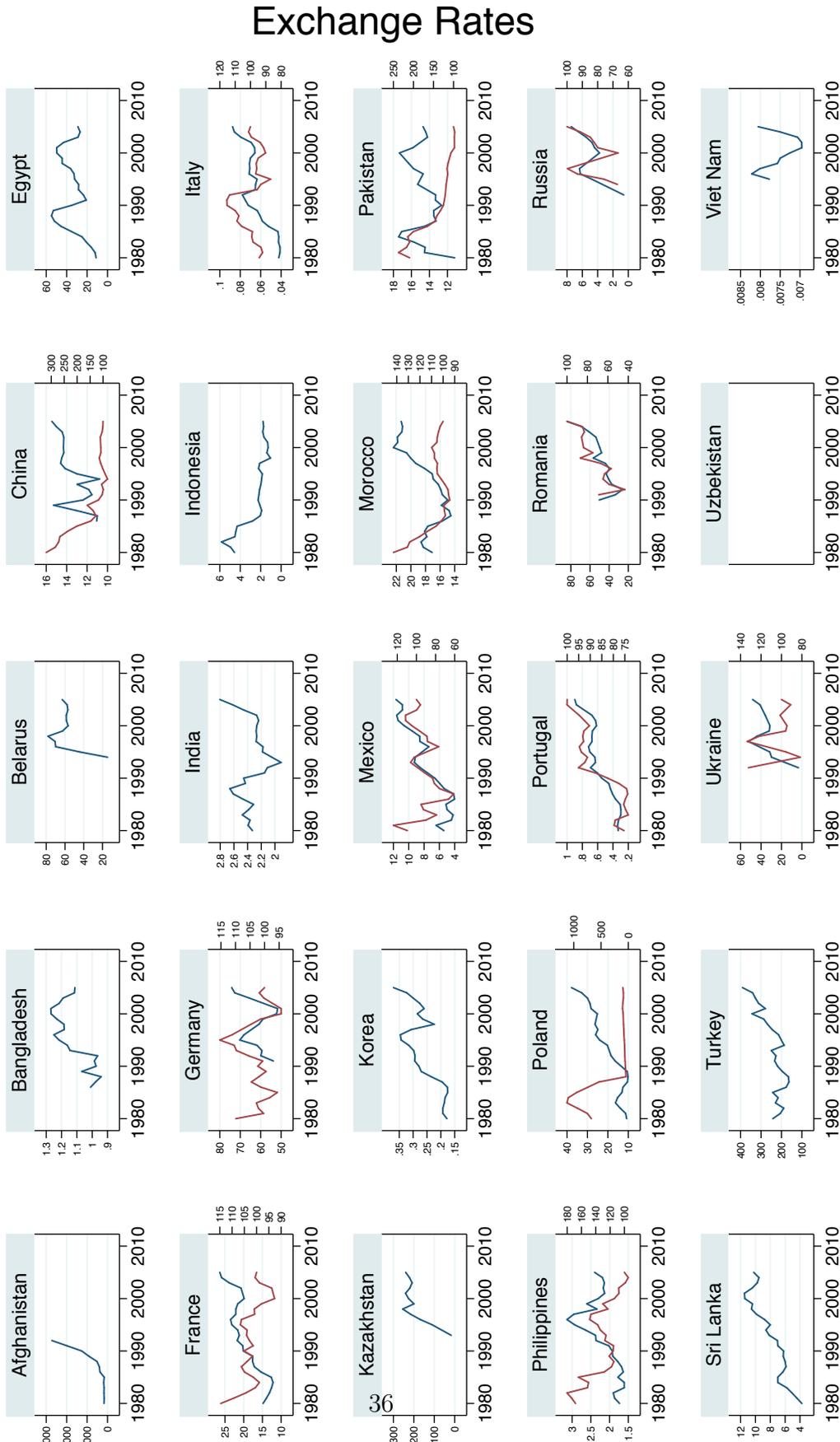
Appendix

Exchange Rates

OECD Countries



Top Migrant-Sending Countries



Year

Migration RER (Mishra Spilimbergo, 2011)

REER (World Bank)

Exchange Rates

References

- Bernheim, B. Douglas and Michael D. Whinston (1986). “Menu Auctions, Resource Allocation, and Economic Influence.” *Quarterly Journal of Economics* 101.1, pp. 1–31.
- Bordo, Michael D. (1993). “The Gold Standard, Bretton Woods and Other Monetary Regimes: A Historical Appraisal.” *Federal Reserve Bank of St. Louis Review*.
- Broz, J. Lawrence and Jeffrey A. Frieden (2001). “The Political Economy of International Monetary Relations.” *Annual Review of Political Science* 4, pp. 317–43.
- Coplevitch, Mark and Jon C. Pevehouse (2012). “Currency Wars By Other Means? Exchange Rates and WTO Dispute Initiation.” presented at at the 5th Annual Conference on the Political Economy of International Organizations (PEIO), Villanova University, Philadelphia, PA, January 26–28, 2012.
- Cox, Adam B. and Eric A. Posner (2009). *The Rights of Migrants*. Working Paper. John M. Olin Law & Economics Working Paper Series.
- Destler, I. Mac and C. Randall Henning (1989). *Dollar Politics: Exchange Rate Policymaking in the United States*. Washington, D.C.: Institute for International Economics.
- Dominguez, Kathryn M. and Jeffrey A. Frankel (1993). “Does Foreign-Exchange Intervention Matter? The Portfolio Effect.” *The American Economic Review* 83.5, pp. 1356–69.
- Fatum, Rasmus and Michael M. Hutchison (2003). “Is Sterilised Foreign Exchange Intervention Effective After All? An Event Study Approach.” *The Economic Journal* 113, pp. 390–411.
- Frankel, Jeffrey A. (1994). “The Making of Exchange Rate Policy in the 1980s.” NBER Working Paper No. w3539.
- Freeman, Gary P. (1995). “Modes of Immigration Politics in Liberal Democratic States.” *International Migration Review* 29.4, pp. 881–902.

- Frieden, A. Jeffrey, Piero Ghezzi, and Ernesto Stein (2001). “Politics and Exchange Rates: A Cross-Country Approach to Latin America.” *The Currency Game: Exchange Rate Politics in Latin America*. Ed. by Jeffrey A. Frieden and Ernesto Stein. Baltimore, MD: Johns Hopkins University Press, pp. 21–63.
- Frieden, Jeffrey A. (1991). “Invested Interests: The Politics of National Economic Policies in a World of Global Finance.” *International Organization* 45.4, pp. 425–451.
- Grossman, Gene M. and Elhanan Helpman (1994). “Protection for Sale.” *American Economic Review* 84, pp. 833–850.
- Hainmueller, Jens and Michael J. Hiscox (2007). “Educated Preferences: Explaining Attitudes Toward Immigration in Europe.” *International Organization* 61.2, pp. 399–442.
- (2010). “Attitudes toward Highly Skilled and Low-skilled Immigration: Evidence from a Survey Experiment.” *American Political Science Review* 104.1, pp. 61–84.
- Hanson, Gordon H., Kenneth Scheve, and Matthew J. Slaughter (2007). “Public Finance and Individual Preferences Over Globalization Strategies.” *Economics & Politics* 19.1, pp. 1–33.
- Hanson, H. Gordon and Antonio Spilimbergo (1999). “Illegal Immigration, Border Enforcement, and Relative Wages: Evidence from Apprehensions at the U.S.–Mexico Border.” *The American Economic Review* 89.1, pp. 73–92.
- Harrison, David (February 21, 2009). *UK Poles Return Home*. The Telegraph. URL: <http://www.telegraph.co.uk/news/worldnews/europe/poland/4742214/UK-Poles-return-home.html>.
- Hatton, Timothy J. and Jeffrey G. Williamson (2005a). “A Dual Policy Paradox: Why Have Trade and Immigration Policies Always Differed in Labor-Scarce Economies?” Unpublished manuscript, National Bureau of Economic Research. Boston, MA.
- (2005b). *Global Migration and the World Economy*. Cambridge, MA: The MIT Press.

- Henning, C. Randall (1990). “International Monetary Policymaking Within the countries of the Group of Five.” Mimeograph.
- Hotelling, Harold (1932). “Edgeworth’s Taxation Paradox and the Nature of Demand and Supply Functions.” *Journal of Political Economy* 40.5, pp. 577–616.
- Khoudour-Casteras, David (Forthcoming). “International Adjustment under the Classical Gold Standard: The Migration Nexus.” *Financial History Review*.
- Krasner, Stephen (1978). “United States Commercial and Monetary Policy: Unraveling the Paradox of External Strength and Internal Weakness.” *Between Power and Plenty*. Ed. by Peter Katzenstein. Madison, WI: University of Wisconsin Press.
- Laglagaron, Lauren et al. (2008). *Regulating Immigration at the State Level*. Report. Washington, DC: Migration Policy Institute.
- Massey, Douglas S. et al. (1993). “Theories of International Migration: A Review and Appraisal.” *Population and Development Review* 19.3, pp. 431–466.
- Mishra, Prachi and Antonio Spilimbergo (2011). “Exchange Rates and Wages in an Integrated World.” *American Economic Journal: Macroeconomics* 3.4, pp. 53–84.
- Mussa, Michael (1981). *The Role of Official Intervention*. New York: Group of Thirty.
- Neuman, Gerald L. (1993). “The Lost Century of American Immigration Law (1776-1875).” *Columbia Law Review* 93.8, pp. 1833–1901.
- Nikolova, Elena (2012). *Labour Markets and Representative Institutions: Evidence from Colonial British America*. Working Paper. URL: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1896045.
- Oatley, Thomas (2010). “Real Exchange Rates and Trade Protectionism.” *Business and Politics* 12.2. Article 1.
- (2011). “Exchange Rate Movements and the Demand for Protection in the United States, 1975-2004.” (under review).

- OECD (2004). *Migration for Employment: Bilateral Agreements at a Crossroads*. Tech. rep. Paris: Organisation for Economic Co-operation and Development.
- Olson, Mancur (1971). *The Logic of Collective Action*. Cambridge, MA: Harvard University Press.
- Peters, Margret E. (2011). “Open Trade, Closed Borders: Immigration Policy in the Era of Globalization.” PhD thesis. Stanford, CA: Stanford University.
- Rogoff, Kenneth (1984). “On the Effects of Sterilized Intervention: An Analysis of Weekly Data.” *Journal of Monetary Economics* 14, pp. 133–150.
- Sarno, Lucio and Mark P. Taylor (2001). “Official Intervention in the Foreign Exchange Market: Is It Effective and, If so, How Does It Work?” *Journal of Economic Literature* 39.3, pp. 839–68.
- Singer, David Andrew (2010). “Migrant Remittances and Exchange Rate Regimes in the Developing World.” *American Political Science Review* 104.2, pp. 307–323.
- Stalker, Peter (2000). *Workers without Frontiers*. Boulder, CO: Lynne Rienner Publishers, Inc.
- Steinberg, David and Victor Shih (2012). “Interest Group Influence in Authoritarian States: The Political Determinants of Chinese Exchange Rate Policy.” *Comparative Political Studies* 45.11, pp. 1405–1434.
- Taylor, Mark P. (1995). “The Economics of Exchange Rates.” *Journal of Economic Literature* 33.1, pp. 13–47.
- Timmer, Ashley S. and Jeffrey G. Williamson (1998). “Immigration Policy Prior to the 1930s: Labor Markets, Policy Interactions, and Globalization Backlash.” *Population and Development Review* 24.4, pp. 739–771.
- Yang, Dean (2006). “Why Do Migrants Return to Poor Countries? Evidence from Philippine Migrants’ Responses to Exchange Rate Shocks.” *Review of Economics and Statistics* 88.4, pp. 715–735.

Yang, Dean (2008). “International Migration, Remittances, and Household Investment: Evidence from Philippine Migrants’ Exchange Rate Shocks.” *The Economic Journal* 118, pp. 591–630.

Zolberg, Aristide R. (1989). “The Next Waves: Migration Theory for a Changing World.” *International Migration Review* 23.3, pp. 403–430.