Managing Migration With Trade Agreements:
The Role of Visa Provision

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World Bank, June 24th 2022

Deep Trade Agreement and Migration

- Increasing number of Deep Trade Agreements (DTAs) with provisions easing the bureaucratic procedures to obtain visa, i.e. reducing red tapes for migration.
  - In the 1990s: 5% of DTAs included Visa provision.
  - Post 2007: 20% of DTAs included Visa provision.

- Do Deep Trade Agreements constitute a preferential migration policy tool?
  - When governments have their hands tied on explicit migration policy (because of electoral constraints), they can indirectly manage international migration by fine tuning *ad hoc* visa provisions in RTAs.

- Few papers tested the role of administrative burden at the border on bilateral migration.

This paper benefits from the recent World Bank data on the content of DTAs and studies the effect of visa-related provisions in DTAs on the bilateral settlement of migrants.

Our contributions

1. Using the content of *279* DTAs, we look at how *changes* in the administrative burden for international migration affect the international settlement of immigrant.

2. First paper that looks at the migration effect of specific types of visa provision.

3. We highlight an important heterogeneity in the effect of visa-related provisions on bilateral migration stocks among countries with different income level and political orientations.

Literature and contribution

- **Determinants of bilateral migration :** *push* and *pull* factors.

  Wage and the employment rate at destination have been showed as key *pull* factors (Hatton 2005; Mayda 2010; Grogger and Hanson 2011; Ortega and Peri 2013).

  Income dispersion and poverty are the main *push* factors (Mayda 2010).

  ⇒ **Focus on time-varying administrative cost for migration.**

- **The role of administrative burden at the border on bilateral migration.**

  Visa requirements affects migration flows (Bertoli and Fernandez-Huertas Moraga 2015).

  RTAs and Visa provision reduce the administrative burden for migration (Orefice 2015; Figueiredo, Lima and Orefice 2016).

  ⇒ **Within identification + wider set of countries and RTAs + Specific Visa provisions.**

Overview

Theoretical framework

- **Key point**: Conditional on push and pull factors, a reduction in the administrative migration cost affects the potential migrant's choice on the optimal destination country.

- The individual h, residing in country i, has to decide the optimal location j^* from a set of possible destinations $j \in J$.

- The optimal destination j^* is obtained by maximizing: $j^* = argmax_{j \in J} \, U_{hijt}$.

- The log-linear utility from migration, U_{hijt}, depends on the wage in destination country j (w_{jt}), and on the bilateral time-varying cost of migration, c_{ijt}:

$$U_{hijt} = ln\left(w_{jt}\right) - ln\left(c_{ijt}\right) + ln\left(\xi_{hijt}\right)$$

Theoretical framework

- Under the assumption that the idiosyncratic component $ln\,(\xi_{hjit})$ is distributed as type-1 extreme value, the probability of migration from country i to country j, p_{ijt} is:

$$p_{ijt} = \frac{e^{ln(w_{jt}) - ln(c_{ijt})}}{\sum_d^J e^{ln(w_{dt}) - ln(c_{idt})}} = \frac{w_{jt}/c_{ijt}}{\sum_d^J w_{dt}/c_{idt}}$$

- All individuals in i extract the same utility from migrating to j (except for the random component ξ_{hjit}) $\rightarrow p_{ijt}$ is the share of individuals in i that find optimal to migrate to j.

- The predicted migration flow from i to j is the product between the total population in the origin country i, N_{it}, and the probability of migrating from i to j:

$$M_{ijt} = \frac{w_{jt}/c_{ijt}}{\sum_d^J w_{dt}/c_{idt}} \times N_{it}$$

Theoretical framework

- Labor market clearance equation used to obtain the equilibrium wage (w_{jt}):

$$L_{jt} = \sum_i M_{ijt} = \sum_i \left(\frac{w_{jt}/c_{ijt}}{\sum_d w_{dt}/c_{idt}} \times N_{it} \right) = w_{jt} \sum_i \left(\frac{1}{c_{ijt} W_{it}} N_{it} \right)$$

- Since total world labour supply is $N_t = \sum_i N_{it} \Rightarrow$ the equilibrium wage is:

$$w_{jt} = \frac{L_{jt}}{\Omega_{jt} N_t}$$

- where $\Omega_{jt} = \sum_i \left(\frac{1}{c_{ijt} W_{it}} \right)$. By substituting the equilibrium wage in the predicted migration flow equation we obtain the structural gravity equation for migration:

$$M_{ijt} = \frac{L_{jt} N_{it}}{N_t} \frac{1/c_{ijt}}{\Omega_{jt} W_{it}}$$

Theoretical framework

- The country pair-time specific migration cost c_{ijt} can be decomposed into:
  - Time-invariant component (i.e. geographic distance or common culture traits between i and j).
  - Time-variant component capturing any bilateral migration policy that i and j set together.

- Visa provisions in RTAs belong to the latter type of bilateral migration costs; they reduce the time-variant component of the bilateral migration costs between country i and j.

- **From theory to empirics**. Theory delivers predictions on migration *flows*. Data constraints imply using the *stocks* of migrants. Imperfect match?
  - Stocks result from recursive (net) migration flows $\rightarrow$ the determinants of flows apply to stocks.
  - The inclusion of country-pair fixed effects implies an identification based on bilateral stocks *deviations* from the average stock of immigrants, i.e. coarse proxy for flows.

Overview

Data

World Bank Handbook of Deep Trade Agreements (Mattoo et al. 2020) – DTA database.

- Information on the content of RTAs (18 chapters).

- Focus on Visa provision (Chapter 8): *"the presence, depth, and geographical distribution of visa and asylum provisions in preferential trade agreements (PTAs)"*.

- 279 RTAs included in the DTA database, among them 100 RTAs include a visa-related provision.

- Info on the type of Visa provision based on 30 binary choice questions.

UN Population Division Migrant Stock data.

- Stock of international migrants by origin and destination for 232 countries between 1990 and 2020, on a five-year based intervals.

Other sources:

- 'Gravity' CEPII data: GDP of origin and destination countries, common religion, language and colonial linkages.

- Manifesto Project Database (MPD): share of right wing (i.e. nationalist) parties' votes.
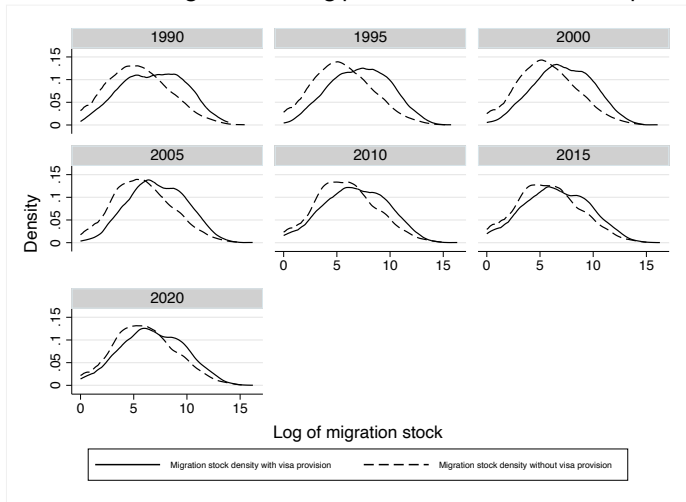
Descriptive

Figure 1 – Number of DTAs by year: total and with Visa.
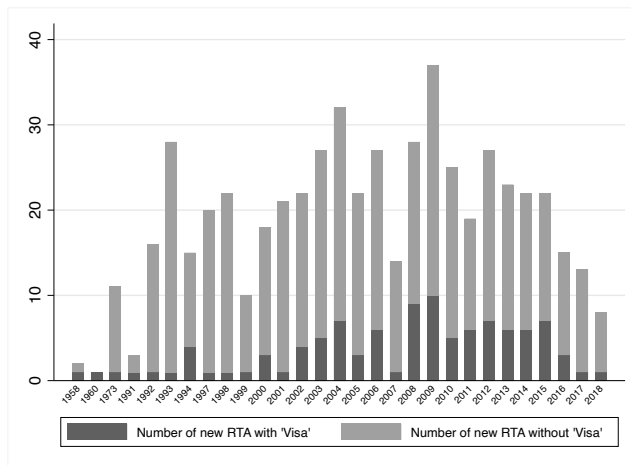
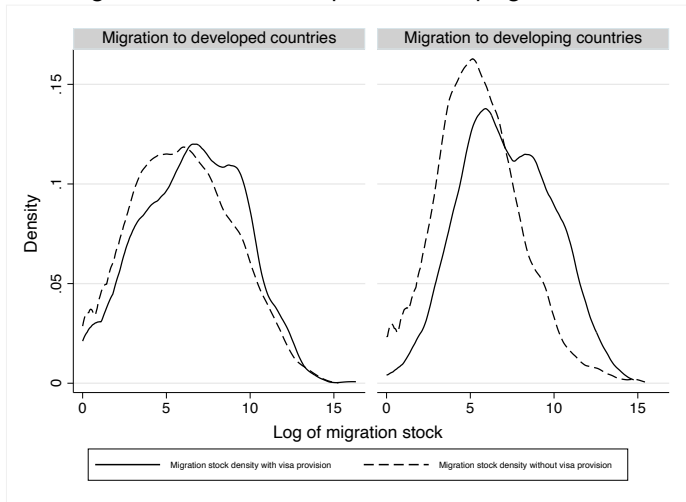Source: World Bank DTA database.

Descriptive

Figure 2 – Bilateral migration among pairs with and without visa provisions.

Source: United Nations Population Division

Descriptive

Figure 3 – Migration towards developed *vs* developing destination countries

Source: United Nations Population Division

Descriptive

Table 1 – The probability of visa provision in RTAs.

Dep var:	Visa	
	(1)	(2)
Right wing vote (sh)[a]	-0.000	-0.011**
	(0.002)	(0.005)
GDP difference (ln)	0.011***	0.012**
	(0.002)	(0.006)
Schenghen	-0.018*	-0.250***
	(0.010)	(0.016)
Year FE	Yes	Yes
Country-pair Fixed Effects	Yes	Yes
Subsampling	No	Yes
Sample period	1990-2020	1990-2020
Observations	33,485	9,771
R-squared	0.654	0.694

Note: [a] Sum of the share of right wing votes in destination and origin country. In column (2) we restrict the sample to country-pairs that sign a RTA during the period. Robust standard errors in parentheses. ***, **, * significantly different from 0 at the 1%, 5%, and 10% levels respectively.

Overview

Empirical strategy: baseline

The empirical counterpart of the structural gravity for migration is:

$$Mig_{ijt} = exp\left[\beta_1 Visa_{ijt} + \beta_2 RTA_{ijt} + \delta_{it} + \mu_{jt} + \theta_{ij} + X_{ijt}\right] \times \epsilon_{jst}$$

- Mig_{ijt}: bilateral stock of migrants from origin i residing in j at time t.

- δ_{it}: origin-year FE capturing origin-time specific determinants of migration (i.e. N_{it}, W_{it}).

- μ_{jt}: destination-time FE capturing factors attracting immigrant at destination (i.e. N_{jt}, Ω_{jt}).

- θ_{ij}: country-pair fixed effects capturing the (time-invariant) migration costs.

- RTA_{ijt}: equal to one if the ij pair has a RTA in force at time t.

- $Visa_{ijt}$: dummy if the RTA includes a chapter easing procedures for Visa (time-varying migration cost).

- X_{ijt} includes: (ii) Schengen dummy, and (ii) the difference in (log) per capita GDP between i and j.

Empirical strategy: extension

Visa-related provisions may vary a lot across DTAs we replace the $Visa_{ijt}$ dummy by specific types of visa-provision dummy in the DTA, $VisaType_{ijt}$:

$$Mig_{ijt} = exp[\beta_1 VisaType_{ijt} + \beta_2 RTA_{ijt} + \delta_{it} + \mu_{jt} + \theta_{ij}] \times \epsilon_{jst}$$

$VisaType_{ijt}$ equal to one if the Visa provision (in turn):

- Includes dispute settlement mechanism enforcing the Visa provision.

- Calls for freedom of movement of workers/people.

- Facilitates persons obtaining residency or nationality/citizenship in either party.

- Expedites the application procedures for immigration formalities for natural persons.

Overview

Results: baseline

Dep var:	Bilateral Stock of Migrants		
	(1)	(2)	(3)
Visa	0.223***	0.052**	0.050**
	(0.059)	(0.024)	(0.024)
RTA	0.858***	0.031	0.033
	(0.061)	(0.024)	(0.023)
Schenghen			0.177***
			(0.041)
Estimator	PPML	PPML	PPML
Gravity controls	Yes	No	No
Country-Year Fixed Effects	Yes	Yes	Yes
Country-Pair Fixed Effects	No	Yes	Yes
Observations	169,064	51,983	51,983

Note: Dependent variable is the stock of immigrants in country j originating from i. Robust standard errors in parentheses. ***, **, * significantly different from 0 at the 1%, 5%, and 10% levels respectively.

Results: timing of RTAs

Figure 4 – The dynamic effect of visa provision.
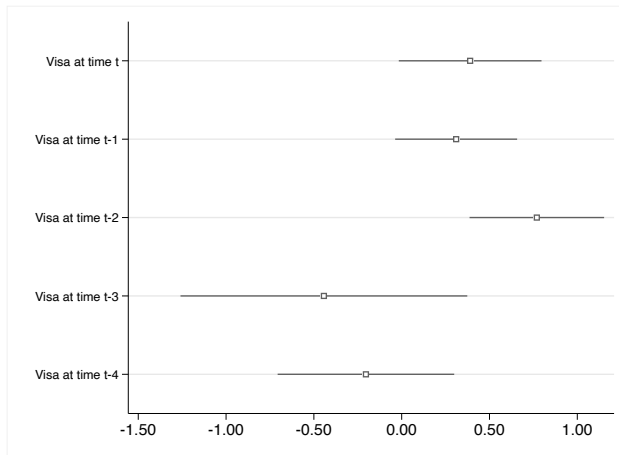
Source: Coefficients from specification without pair fixed effects.
with pair FE

Results: by income level

Dep var:	Bilateral Stock of Migrants		
	(1)	(2)	(3)
Visa	0.207***	-0.007	-0.017
	(0.075)	(0.039)	(0.039)
Visa × North-South	0.005	0.116*	0.133**
	(0.140)	(0.061)	(0.061)
RTA	0.711***	-0.040	-0.038
	(0.079)	(0.041)	(0.040)
RTA × North-South	0.396***	0.117**	0.119**
	(0.121)	(0.054)	(0.054)
Schenghen			0.185***
			(0.041)
Estimator	PPML	PPML	PPML
Gravity controls	Yes	No	No
Country-Year Fixed Effects	Yes	Yes	Yes
Country-Pair Fixed Effects	No	Yes	Yes
Observations	169,064	51,983	51,983

Note: Dependent variable is the stock of immigrants in country j originating from i. Robust standard errors in parentheses. ***, **, * significantly different from 0 at the 1%, 5%, and 10% levels respectively.

Results: by type of provision

Dep var:	Bilateral Stock of Migrants			
	(1)	(2)	(3)	(4)
Dispute Settlement	0.096** (0.042)			
Freedom of Movement		0.054* (0.032)		
Residency or Citizenship			-0.049 (0.031)	
Migration formalities				0.093** (0.041)
RTA	0.027 (0.023)	0.035 (0.023)	0.046** (0.023)	0.028 (0.023)
Schenghen	0.179*** (0.041)	0.175*** (0.041)	0.179*** (0.041)	0.178*** (0.041)
Estimator	PPML	PPML	PPML	PPML
Country-Year FE	Yes	Yes	Yes	Yes
Country-Pair FE	Yes	Yes	Yes	Yes
Observations	51,983	51,983	51,983	51,983

Note: Dependent variable is the stock of immigrants in country i originating from j. Robust standard errors in parentheses.
***, **, * significantly different from 0 at the 1%, 5%, and 10% levels respectively.

Results: the role of political economy (Right wing vote)

Dep var:	Bilateral Stock of Migrants	
	(1)	(2)
Visa	0.042	0.028
	(0.054)	(0.053)
Visa × Right wing vote (sh)	0.030*	0.035**
	(0.017)	(0.017)
RTA	0.038	0.043
	(0.038)	(0.037)
Schenghen		0.208***
		(0.047)
GDP difference (ln)	0.004	0.000
	(0.008)	(0.008)
Estimator	PPML	PPML
Country-Year Fixed Effects	Yes	Yes
Country-Pair Fixed Effects	Yes	Yes
Observations	27,044	27,044

Note: Dependent variable is the stock of immigrants in country j originating from i. Robust standard errors in parentheses. ***, **, * significantly different from 0 at the 1%, 5%, and 10% levels respectively.

Overview

IV strategy

IV based on the i- and j-specific propensity to include Visa in RTAs with third countries (leave-one-out approach):

$$Visa_{ijt}^{IV} = \left(\frac{1}{K} \sum_{k \neq j} Visa_{ikt} \times \frac{1}{K} \sum_{k \neq i} Visa_{kjt} \right)$$

The exclusion restriction bases on the idea that:

- Country i and j do not consider the ijt specific stock of migrants in deciding whether including Visa provisions in RTAs with third-country.

- The presence of Visa provision in RTAs with third-country does not directly affect the ijt specific stock of migrants.
    - The average effect of Visa provision with third-countries on ijt-specific migration stock is captured by it and jt fixed effects.

Results: IV strategy

Dep var:	Visa	Mig. stock (ln)	Bil. Mig. stock
	(1)	(2)	(3)
Visa^{IV}	0.112***		
	(0.001)		
Visa		0.069*	0.872***
		(0.039)	(0.249)
RTA	0.415***	0.057***	-0.328***
	(0.002)	(0.018)	(0.115)
Schenghen	-0.148***	0.124***	0.249***
	(0.004)	(0.014)	(0.059)
GDP difference (ln)	0.003***	-0.015***	-0.010
	(0.000)	(0.002)	(0.012)
Estimator	First Stage	Second Stage	
		OLS	PPML
Country-Year Fixed Effects	Yes	Yes	Yes
Country-Pair Fixed Effects	Yes	Yes	Yes
Observations	179,084	179,084	353,814

Note: Column 1 and 2 follows a 2SLS procedure. Column 3 performs a two-step procedure using OLS in the first stage regression (reported in column 1) and PPML in the second stage as described in lin2019testing. Robust standard errors in parentheses. ***, **, * significantly different from 0 at the 1%, 5%, and 10% levels respectively.

Next steps

1. Policy evaluation approach (pre-trend + dynamic effect).

2. Control for the overall depth of the RTA (Visa correlated with other omitted provisions).

3. De Chaisemartin and D'Haultfoeuille (2020) estimator (heterog. treatment over time).

4. Dig more into the political economy argument.

5. Robustness check using migration flows.

6. Instrumenting both Visa and the RTA dummy.
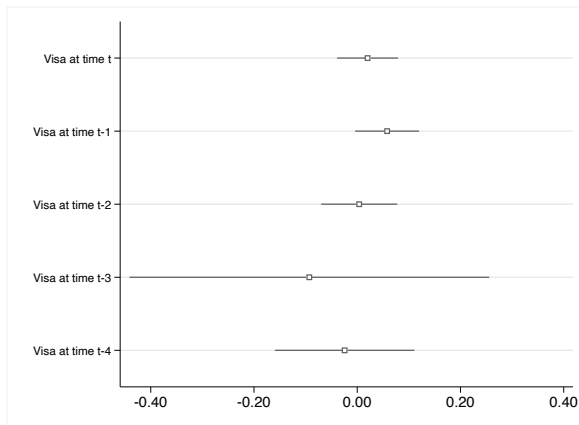
THANKS FOR YOUR ATTENTION

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Results: timing of RTAs

Figure 5 – The dynamic effect of visa provision.

Source: Coefficients from specification with pair fixed effects.

Back

Construction right wing party share of votes

1. Classify the political manifesto of parties based on: (i) National way of life, (ii) Internationalism, (iii) Multiculturalism.

2. Manifesto Project Database assigns a note "+" of "-" on each party-topic.

3. We run a Principal Component Analysis between the three topics to extract the "Right wing" score of each party.

4. For each country we identify the party at the most right side of the spectrum.

5. We take the share of votes for that party.

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