Heterogeneous effects of deep regional trade agreements on international migration

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Introduction ➡Background

International migration

- **For the last two decades, the world has experienced a large increase in flows of migration.**

  According to the Population Division of the UN Department of Economic and Social Affairs (DESA),the number of immigrants' stocks increased from 153 million in 1990 to 272 million in 2019.

- **Comparing migration flows among OECD (North) countries with those from non-OECD(South) countries, South to North flows increased more than North to North flows in the last two decades.**

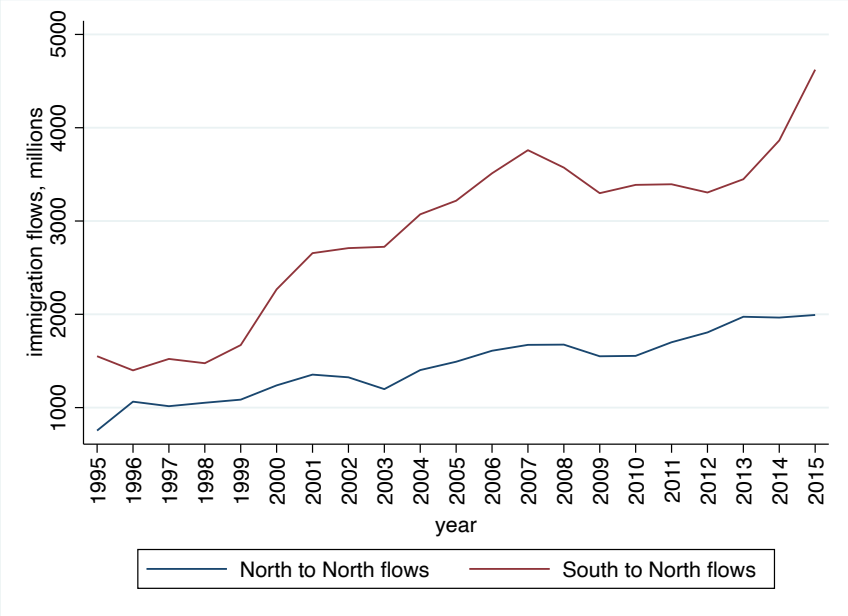

Figure 1. Migration flows of different types of country pairs
Source: The author's calculation from OECD's International Migration Database (IMD).

Introduction ➡Background

Regional Trade Agreements (RTAs)

- **At the same time, there is also a rapid proliferation in RTAs signed by two or multiple countries.**

  From the WTO Regional Trade Agreements Database, the number of RTAs in force increased from only 22 in 1990 to 305 in 2020.

- **Not only are there increases in numbers, but also came with more depth of contents.**

  Mainly about trade in goods ⟶ Started to contain services issues and other trade-related issues ⟶ Generated some provision areas that are not directly related to trade

  Horn et al. (2010) define 52 provisions in TAs and divide these 52 provisions into two categories, which are (1) 'WTO-plus'(WTO+) and (2) 'WTO-extra'(WTO-X).

Introduction ➡Closely related literature

Orefice (2015)

- He uses a sample with 29 destination OECD countries from 198 origin countries in the period 1998-2008 to show a robust positive effect of RTAs on bilateral migration flows by Poisson pseudo-maximum likelihood (PPML) regressions.
- As an addition to the effects of RTAs, the contents of RTAs also matter. In particular, he finds that visa-and-asylum provisions and labor market regulations in RTA stimulate international migration flows further.
- However, he fails to find a positive effect of GATS provision on bilateral migration flows.

Introduction ➡Closely related literature

Figueiredo et al.(2016)

- They address a potential problem of the PPML estimator by employing the Censored Quantile (CQ) regression model.
- They find that RTAs positively impact bilateral migration stocks, whereas the impact is larger for developing destination countries and South-South migration stocks by using the data cover 200 countries from 1960 to 2010 (for every ten years).
- They also focus on the visa-and-asylum provision and find that the inclusion of the visa-and-asylum provision indeed has an additional positive impact on the bilateral migration stocks.
- However, they do not show whether the effect of the visa-and-asylum provision is heterogeneous for migration to developing destination countries and South-South migration.

Introduction ➡Research Question

i. Are the effects of the migration-related provisions in deep TAs heterogeneous, depending on the origin countries of migration flows?

ii. Why does the previous study fail to find a positive effect of GATS provision on bilateral migration flows?

iii. Do the more detailed policy areas in each provision matter for the impact of the contents of deep TAs on bilateral migration flows?

Introduction ➡Research Question

🔍 Adding to previous studies

- Similar to Orefice (2015), I use the data on bilateral migration flows to OECD destination countries. However, the coverage of the data is extended to 35 OECD destination countries from 201 origin countries in the period 1995-2014. Using this dataset, I could address the issue of potential heterogeneous effects on South-to-North and North-to-North migration flows.
- I investigate the effects of the inclusion of policy areas in the labor-market-regulation, the visa-and-asylum, and the service provisions more in detail using a new deep TA dataset released by the World Bank.

Introduction ➡Research Question

Main Findings

2.0 data base

① In the more detailed policy areas for visa-and-asylum provisions, the contents of policy areas show the different effects for migration flows that the more depth in the **"positive" visa policy areas** show its substantial importance increasing migration flows.

② The more depth in **labor market regulation** provisions also plays a crucial role in the migration flows.

③ Although the depth in policy areas of service provision shows the adverse effects on migration flows, when distinguishing **movements of natural persons** in service with other policy areas, it shows the positive impact.

④ Moreover, the more depth in these three provisions' policy areas, all benefit South-to-North flows more.

Introduction ➡Research Question

Main contribution

① This study shows that the effects of the migration-related provisions in RTAs are heterogeneous between South-to-North and North-to-North migration flows.

② This study also shows that **the detailed policy areas in each migration-related provision matter** for the effects of deep RTAs on migration flows. For example, some of the provisions in the visa-and-asylum policy area work to restrict bilateral migration. Thus, this study suggests that the characteristics of individual policy areas in each provision should be considered when estimating the impacts of deep RTAs on migration flows.

③ This study also finds that, among various policy areas in the service provisions, the policy areas related to **the movement of natural persons facilitate South-to-North migration flows**. In contrast, the full policy areas in the service provisions may not have a positive impact on migration flows.

Provisions in Deep TAs that are related to migration

2.0 Database

Only mode-4

- **Provisions of GATS-related (Services) (?):** The main architectural and the design features, and the precise contents of liberalization commitments/reservations.
- **Provisions of Labor market regulation(+) :** The detailed decomposition of the labor market regulation policy, their relations to investment, and the reference to cooperation over Labor Market provisions, and the institution of labor market regulation issues.
- **Provisions of Visa and asylum (?):** Migration goals, coverage, types of movement of natural persons, facilitation of movement of natural persons, reference to other international instruments, institutional arrangements and dispute Settlement, and **exceptions and Limitations**.

Hypothesizes

H.1 Signing an RTA with migration-related provisions increases migration flows.

H.2 Comparing the effects of Signing an RTA with migration-related provisions between North to North and South to North flows, they benefits South to North flows stronger.

H.3 The more depth in policy areas of Labor market regulation provisions, increase migration flows.

H.4 The more depth in policy areas of Visa and Asylum provisions (except for some policy areas that set hurdles for migration), increase migration flows.

H.5 The more depth in policy areas of Service that related to movement of natural persons, increase migration flows.

A Gravity Model of Migration

I explain the structural gravity model developed by Anderson (2011).

$$M^{ij} = \frac{L^j N^i}{N} \left(\frac{\delta^{ij}}{\overline{\Omega^j} \overline{W^i}} \right)^{1-\theta} \tag{1}$$

where

$$\overline{\Omega^j} = \left[\sum_i \frac{\delta^{ij}{}^{1-\theta}}{\overline{W^i}} \frac{N^i}{N} \right]^{1/(1-\theta)} \tag{2}$$

and

$$\overline{W^i} = \left[\sum_j \frac{\delta^{ij}{}^{1-\theta}}{\overline{\Omega^j}} \frac{L^j}{N} \right]^{1/(1-\theta)} \tag{3}$$

Following Figueiredo et al. (2016),

$$\delta^{ijt} = FC_{ij}^{\beta_1} VC_{ijt}^{\beta_2} \tag{4}$$

Empirical Methodology

Empirical Model

$$M_{ijt} = exp(\alpha + \beta_1 RTAdummy_{ijt_{t-1}} + \beta_2 DepthofTA_{ijt_{t-1}} + \beta_3 DiffGDP_{ijt} + \beta_4 DiffGDP_{ijt}{}^2 + \beta_5 X_{ij} + \varphi_t + \mu_{it} + \nu_{jt} + \sigma_{ij} + \varepsilon_{ijt}) \quad (5)$$

$$M_{ijt} = exp(\alpha + \beta_1 RTAdummy_{ijt_{t-1}} + \beta_2 DepthofTA_{ijt_{t-1}} + \beta_3 DiffGDP_{ijt} + \beta_4 DiffGDP_{ijt}{}^2 + \beta_5 X_{ij} + +\beta_6 DepthofTA_{ijt_{t-1}} \times OECDdummy_{ijt} + \beta_7 OECDdummy_{ijt} + \varphi_t + \mu_{it} + \nu_{jt} + \sigma_{ij} + \varepsilon_{ijt}) \quad (6)$$

Empirical Methodology

Empirical Model

- M_{ijt} represents the migration flows from country i(origin country) to country j(destination country) at time t
- $RTAdummy_{ijt}$ is a dummy variable that equals to one if country i and country j signed an RTA at time t and equals to zero otherwise.
- $DiffGDP_{ijt}$are the absolute difference in (log)per capita GDP.
- A set of X_{ij} captures the time-invariant bilateral variables.
- $OECDdummy_{ijt}$ are equals to one when both of country i and country j are OECD countries at time t and equals to zero otherwise.

Empirical Methodology

Empirical Model

- $DepthofTA_{ijt}$

① All Index

$$Labor\_all\_index = \frac{1}{18} \times \sum_{i=1}^{18} Labor\ provitions_i$$

$$Visa\_all\_index = \frac{1}{30} \times \sum_{i=1}^{30} Visa\ provitions_i.$$

The conduction of Service data covers the main architectural and the design features of Service provisions by (i.e., A, B, C, D). I exclude those design features coding and only focus on (1,0) coding provisions for service:

$$Service\_all\_index = \frac{1}{41} \times \sum_{i=1}^{41} Service\ provitions_i.$$

Empirical Methodology

Empirical Model

- $DepthofTA_{ijt}$

② PCA Index suggested by Hofmann et al.(2017)

This index is defined as the weighted average of policy areas using the coefficients of the first component that are obtained from the PCA as weights ω_k.

$$X\_PCA\_Index = \sum \omega_k X\_provisions, X \in \{Labor, Service, Visa\}$$

To be noted, the coefficients of the first component of Visa show several negative results that make Visa_PCA_Index contains many negative points.

Empirical Methodology

Visa "Positive" Index

Table 1: Examples of The contents of negative coefficients in Visa

Provisions	Contents	Coefficients
prov_23	Does the agreement provide a quota on number of visas to be issued to natural persons of parties?	-0.0202
prov_16	Does the agreement limit the time for processing applications requesting temporary entry of natural persons?	-0.0418
prov_28	Does the agreement specifically allow parties to bar entry of natural persons based on public security/order reasons?	-0.0478
prov_25	Does the agreement explicitly exclude questions or measures regarding employment on a permanent basis?	-0.2748
prov_27	Does the agreement explicitly exclude questions or measures regarding nationality/citizenship?	-0.2858
prov_26	Does the agreement explicitly exclude questions or measures regarding residency?	-0.315

Movement of natural persons from Service provisions

MP_All_Index and MP_PCA_Index

Empirical Methodology

? The Zero migration Flows Problems

- Santos Silva and Tenreyro (2006), Helpman et al. (2008), and Head and Mayer (2014) emphasize the problems that there are actually large amounts of zero trade flows for international trade in goods. ➡ PPML
- Another reason : the dependent variable (migration flows) is count data suggested by Cameron et al.(1998).

? The Endogeneity Problem

- Omitted Variables (bilateral migration policy)
- The reverse causality problem

➡ Country-pair fixed effects

Data

- Migration flows data: OECD International Migration Database (IMD dataset) with 35 OECD destination countries and 201 origin countries from time period 1995-2016.
- Immigrants' stocks in 1990: World Bank Global Bilateral Migration Database
- RTA dummy: Mario Larch's Regional Trade Agreements Database
- Depth of TA variables: Content of Deep Trade Agreements 2.0 Database till 2015, from Labor regulation market, Visa-and-asylum, Service chapter.
- Gravity variables: CEPII Database

Empirical Results

Heterogeneity in more detailed policy areas. (OLS & PPML)

- Estimations with full policy areas

Table 2 & 3 (with OECD dummy interactions)

- Estimations with Service policy areas specified

Table 4 & 5 (with OECD dummy integrations)

Model	(1) OLS	(2) OLS	(3) PPML	(4) PPML
RTAdummy$_{t-1}$	0.292***	0.116*	0.744***	0.0704
	(0.0856)	(0.0637)	(0.123)	(0.106)
OECDdummy	0.369	0.344**	0.356	0.432
	(0.229)	(0.137)	(0.362)	(0.263)
Labor_All_Index$_{t-1}$	0.668***	0.178	0.498**	1.070**
	(0.124)	(0.227)	(0.196)	(0.436)
OECDdummy×Labor_All_Index$_{t-1}$	0.0537	0.603	0.495	0.0888
	(0.346)	(0.525)	(0.412)	(0.268)
Visa_Positive_Index$_{t-1}$	0.361	0.569***	0.862**	0.689*
	(0.320)	(0.174)	(0.389)	(0.382)
OECDdummy×Visa_Positive_Index$_{t-1}$	-0.499	-0.719***	-0.164	-0.345
	(0.357)	(0.265)	(0.561)	(0.671)
Service_All_Index$_{t-1}$	-0.221*	-0.510***	-0.319	-0.382*
	(0.125)	(0.0948)	(0.231)	(0.199)
OECDdummy×Service_All_Index$_{t-1}$	-0.645***	-0.216	0.342	-0.307
	(0.183)	(0.151)	(0.336)	(0.302)
Observations	51,580	51,408	57,636	56,773
R-squared	0.815	0.952		
Year FE	YES	NO	YES	NO
Country-year FE	YES	YES	YES	YES
Pair FE	NO	YES	NO	YES

Notes: Estimations are implemented by using the Stata command reghdfe for OLS model and ppmlhdfe for PPML model. The dependent variable is $Ln(M)_{ijt}$ for OLS, M_{ijt} for PPML. ***, **, and * denote 1% ,5% and 10% significance levels respectively. Standard errors clustered by country-pair are in parentheses. All regressions include the constant term, the difference in per capita GDP between origin and destination countries and its squared value. The regressions of odd columns also include country-pair specific control variables: bilateral distance, stock of migrants in 1990, common border, language and colonial relationship.

Table 2 All_Index with OECD dummy interactions: OLS and PPML

Model	(1) OLS	(2) OLS	(3) PPML	(4) PPML
RTAdummy$_{t-1}$	0.328***	0.205***	0.711***	0.155*
	(0.0857)	(0.0675)	(0.126)	(0.0933)
OECDdummy	0.384*	0.349***	0.733*	0.459*
	(0.230)	(0.131)	(0.395)	(0.254)
Labor_PCA_Index$_{t-1}$	0.153***	-0.0239	0.108**	0.0258
	(0.0279)	(0.0458)	(0.0453)	(0.0593)
OECDdummy×Labor_PCA_Index$_{t-1}$	0.0134	0.126	0.0185	0.00503
	(0.0777)	(0.128)	(0.323)	(0.320)
Visa_PCA_Index$_{t-1}$	0.158	0.324***	0.735***	0.459**
	(0.176)	(0.101)	(0.273)	(0.220)
OECDdummy×Visa_PCA_Index$_{t-1}$	-0.236	-0.397***	-0.408	-0.205
	(0.184)	(0.129)	(0.323)	(0.320)
Service_PCA_Index$_{t-1}$	-0.0647**	-0.103***	0.00718	-0.0453
	(0.0261)	(0.0215)	(0.0544)	(0.0328)
OECDdummy×Service_PCA_Index$_{t-1}$	-0.123***	-0.0466	-0.133*	-0.0372
	(0.0391)	(0.0285)	(0.0681)	(0.0401)
Observations	51,697	51,521	57,757	56,890
R-squared	0.814	0.952		
Year FE	YES	NO	YES	NO
Country-year FE	YES	YES	YES	YES
Pair FE	NO	YES	NO	YES

Table 3 PCA_Index with OECD dummy interactions: OLS and PPML

Model	(1) OLS	(2) OLS	(3) PPML	(4) PPML
RTAdummy$_{t-1}$	0.144**	-0.0995**	0.305***	-0.0638
	(0.0656)	(0.0417)	(0.102)	(0.0911)
OECDdummy	0.511**	0.160	0.652*	0.0944
	(0.213)	(0.112)	(0.376)	(0.260)
Labor_All_Index$_{t-1}$	0.552***	0.112	0.198	1.020**
	(0.120)	(0.228)	(0.186)	(0.463)
OECDdummy×Labor_All_Index$_{t-1}$	-0.197	0.256	0.144	-0.170
	(0.320)	(0.265)	(0.435)	(0.259)
Visa_Positive_Index$_{t-1}$	0.458	0.838***	1.142***	0.733*
	(0.296)	(0.169)	(0.401)	(0.390)
OECDdummy×Visa_Positive_Index$_{t-1}$	-0.252	-0.362	-0.478	0.0598
	(0.324)	(0.237)	(0.544)	(0.654)
MP_All_Index$_{t-1}$	0.100***	0.00680	0.128***	0.00540
	(0.0202)	(0.0108)	(0.0492)	(0.0171)
OECDdummy×MP_All_Index$_{t-1}$	-0.559***	-0.0311	-0.395***	-0.0617**
	(0.0684)	(0.0191)	(0.771)	(0.200)
Observations	52,699	52,541	58,724	57,819
R-squared	0.817	0.954		
Year FE	YES	NO	YES	NO
Country-year FE	YES	YES	YES	YES
Pair FE	NO	YES	NO	YES

Table 4 All_Index with MP with OECD dummy interactions: OLS and PPML

Model	(1) OLS	(2) OLS	(3) PPML	(4) PPML
RTAdummy$_{t-1}$	0.230***	-0.0169	0.613***	0.00434
	(0.0737)	(0.0563)	(0.110)	(0.0750)
OECDdummy	0.590***	0.223*	0.792**	0.355
	(0.228)	(0.124)	(0.376)	(0.267)
Labor_PCA_Index$_{t-1}$	0.155***	-0.0410	0.106**	0.0214
	(0.0277)	(0.0479)	(0.0455)	(0.0633)
OECDdummy×Labor_PCA_Index$_{t-1}$	-0.0208	0.151	-0.0178	0.0124
	(0.0791)	(0.124)	(0.110)	(0.0622)
Visa_PCA_Index$_{t-1}$	0.253	0.521***	0.834***	0.544***
	(0.168)	(0.0967)	(0.240)	(0.201)
OECDdummy×Visa_PCA_Index$_{t-1}$	-0.175	-0.301**	-0.425	-0.154
	(0.178)	(0.124)	(0.302)	(0.322)
MP_PCA_Index$_{t-1}$	0.286***	0.0238	0.256**	0.0398
	(0.0579)	(0.0317)	(0.123)	(0.0486)
OECDdummy×MP_PCA_Index$_{t-1}$	-1.686***	-0.0839	-0.819***	-0.183**
	(0.201)	(0.0571)	(0.305)	(0.0774)
Observations	50,889	50,718	56,727	55,815
R-squared	0.816	0.953		
Year FE	YES	NO	YES	NO
Country-year FE	YES	YES	YES	YES
Pair FE	NO	YES	NO	YES

Table 5 PCA_Index with MP :with OECD dummy interactions: OLS and PPML

Robustness Checks

- Using PCA Top 5 Index

To avoid the selection by using those policy areas whose first coefficient is positive in PCA, I choose the top five coefficients of the first component as the weights to generate a new index.

Model	(1) OLS	(2) OLS	(3) PPML	(4) PPML
Labor_PCA5_Index$_{t-1}$	0.142***	-0.0145	0.138***	0.0617**
	(0.0465)	(0.0177)	(0.0486)	(0.0299)
OECDdummy×Labor_PCA5_Index$_{t-1}$	-0.132	0.00279	-0.159	-0.113***
	(0.101)	(0.0351)	(0.148)	(0.0409)

- Excluding Top 5% migration flows
  - PPML would over-weights large flows problems.
- Including the year of 2015
  - To check the robustness that I drop the year of 2015 for there are the highest migration flows in that year (i.e., Syria-Germany)
- **Those estimations strengthen the reliability of previous studies.**

Conclusion

👉 Main Finding

2.0 data base

① In the more detailed policy areas for **visa-and-asylum** provisions, the contents of policy areas show the different effects for migration flows that the more depth in the "positive" visa policy areas show its substantial importance increasing migration flows.

② The more depth in **labor market regulation** provisions also plays a crucial role in the migration flows.

③ Although the depth in policy areas of service provision shows the adverse effects on migration flows, when distinguishing **movements of natural persons** in service with other policy areas, it shows the positive impact.

④ Moreover, the more depth in these three provisions' policy areas, all benefit South-to-North flows more.

Deep RTAs serve as a new way for increasing international migration flows.

Thank you for watching!😊

Some Figures and Tables

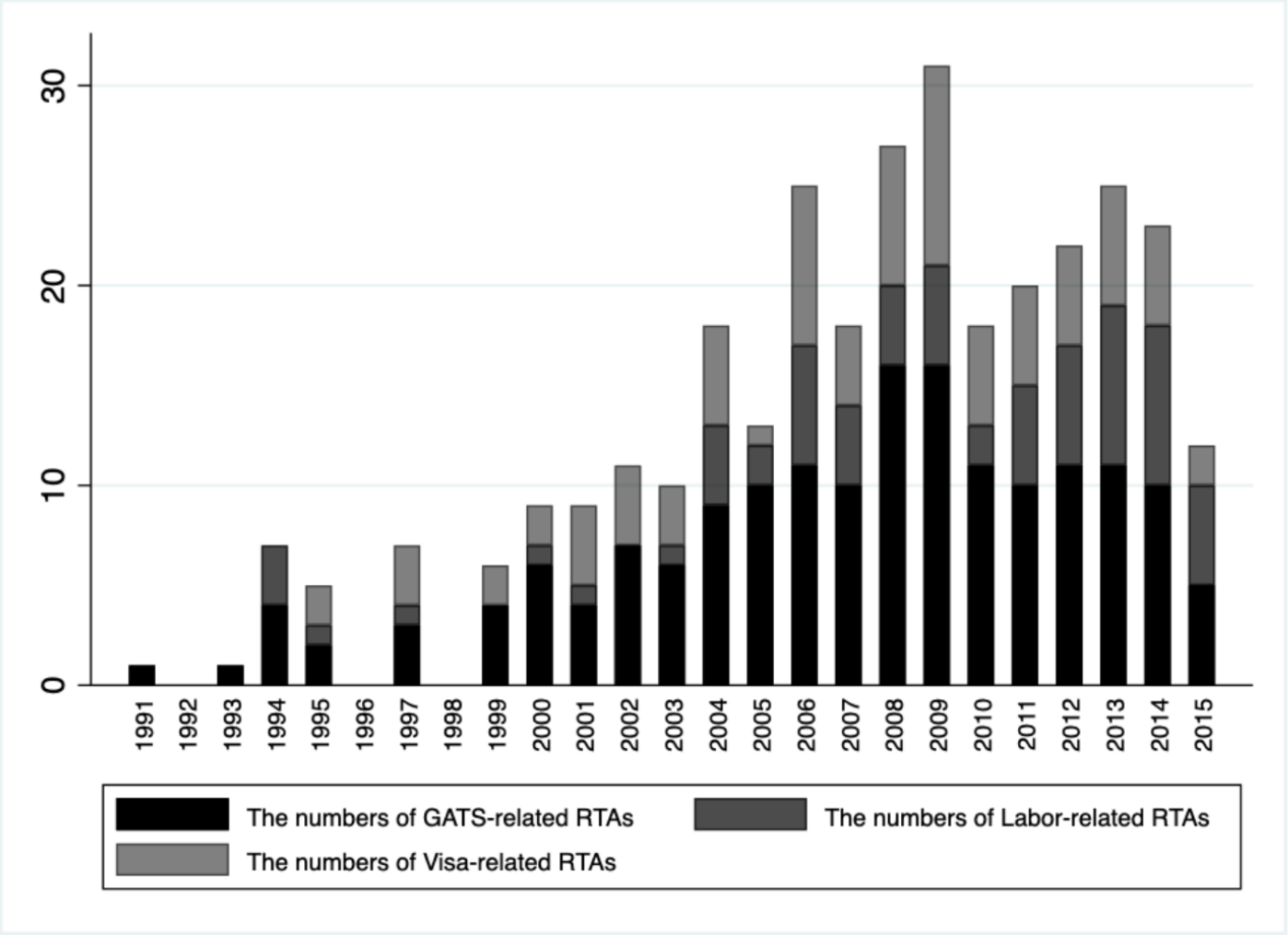

FIGURE 2 The numbers of RTAs that related to migration, 1990-2015

Source: The author's calculation from Contents of Deep Trade Agreements.

Some Figures and Tables

	Labor_All_index	*Visa_Positive_index*	*Service_All_index*
Labor_All_index	1.0000		
Visa_Positive_index	0.0523	1.0000	
Service_All_index	0.0099	0.0535	1.0000

	Labor_All_index	*Visa_Positive_index*	*MP_All_index*
MP_All_index	0.0565	0.0561	1.0000

	Labor_PCA_index	*Visa_PCA_index*	*Service_PCA_index*
Labor_PCA_index	1.0000		
Visa_PCA_index	-0.0423	1.0000	
Service_PCA_index	0.1592	-0.0144	1.0000

	Labor_PCA_index	*Visa_PCA_index*	*MP_PCA_index*
MP_PCA_index	0.0570	0.0565	1.0000

The correlation between Depth indexes

Some Figures and Tables

Model	(1) OLS	(2) OLS	(3) PPML	(4) PPML
RTAdummy$_{t-1}$	0.291***	0.156**	0.729***	0.0972
	(0.0842)	(0.0641)	(0.122)	(0.114)
Labor_All_Index$_{t-1}$	0.693***	0.162	0.702***	1.063**
	(0.118)	(0.226)	(0.210)	(0.437)
Visa_Positive_Index$_{t-1}$	0.0714	0.337**	0.751**	0.642**
	(0.211)	(0.152)	(0.335)	(0.327)
Service_All_Index$_{t-1}$	-0.375***	-0.511***	-0.205	-0.430**
	(0.115)	(0.0857)	(0.206)	(0.183)
Observations	51,580	51,408	57,636	56,773
R-squared	0.814	0.952		
Year FE	YES	NO	YES	NO
Country-year FE	YES	YES	YES	YES
Pair FE	NO	YES	NO	YES

Model	(1) OLS	(2) OLS	(3) PPML	(4) PPML
RTAdummy$_{t-1}$	0.326***	0.240***	0.682***	0.159*
	(0.0841)	(0.0681)	(0.123)	(0.0946)
Labor_PCA_Index$_{t-1}$	0.155***	-0.0272	0.109**	0.0249
	(0.0270)	(0.0455)	(0.0550)	(0.0594)
Visa_PCA_Index$_{t-1}$	-0.00691	0.154*	0.423**	0.371**
	(0.101)	(0.0842)	(0.171)	(0.167)
Service_PCA_Index$_{t-1}$	-0.103***	-0.111***	-0.0381	-0.0567**
	(0.0243)	(0.0197)	(0.0461)	(0.0287)
Observations	51,697	51,521	57,757	56,890
R-squared	0.814	0.952		
Year FE	YES	NO	YES	NO
Country-year FE	YES	YES	YES	YES
Pair FE	NO	YES	NO	YES

Some Figures and Tables

Model	(1) OLS	(2) OLS	(3) PPML	(4) PPML
RTAdummy$_{t-1}$	0.143**	-0.0782*	0.303***	-0.0662
	(0.0633)	(0.0407)	(0.105)	(0.100)
Labor_All_Index$_{t-1}$	0.552***	0.103	0.275	1.023**
	(0.113)	(0.228)	(0.203)	(0.468)
Visa_Positive_Index$_{t-1}$	0.231	0.683***	0.752***	0.756**
	(0.174)	(0.140)	(0.281)	(0.327)
MP_All_Index$_{t-1}$	-0.00466	0.00117	0.0242	-0.00968
	(0.0142)	(0.00918)	(0.0303)	(0.0144)
Observations	52,699	52,541	58,724	57,819
R-squared	0.816	0.953		
Year FE	YES	NO	YES	NO
Country-year FE	YES	YES	YES	YES
Pair FE	NO	YES	NO	YES

Model	(1) OLS	(2) OLS	(3) PPML	(4) PPML
RTAdummy$_{t-1}$	0.222***	0.0158	0.614***	0.0154
	(0.0723)	(0.0557)	(0.114)	(0.0763)
Labor_PCA_Index$_{t-1}$	0.159***	-0.0441	0.100*	0.0204
	(0.0269)	(0.0478)	(0.0550)	(0.0632)
Visa_PCA_Index$_{t-1}$	0.0961	0.366***	0.484***	0.463***
	(0.0916)	(0.0747)	(0.153)	(0.161)
MP_PCA_Index$_{t-1}$	-0.0135	0.00955	0.0535	-0.00392
	(0.0416)	(0.0271)	(0.0865)	(0.0409)
Observations	50,889	50,718	56,727	55,815
R-squared	0.815	0.953		
Year FE	YES	NO	YES	NO
Country-year FE	YES	YES	YES	YES
Pair FE	NO	YES	NO	YES

Some Figures and Tables

TABLE A1 Descriptive Statistics

Variable	No. of Obs	Mean	Std. Dev.	Min	Max
M_{ijt}	77,367	1110.619	6010.509	0	271443
RTAdummyt-1	102,300	0.2376	0.4256	0	1
OECDdummy	102,300	0.1541	0.3611	0	1
lndistw	101,260	8.6244	0.8690	5.0810	9.8814
diffgdp	96,972	2.1993	1.4474	0.0001	6.7100
diffgdpsqure	96,972	6.9320	7.3961	7.23e-09	45.02309
lnstock1990	82,115	5.3861	3.1758	0	15.3550
common_language	101,260	0.0978	0.2970	0	1
common_border	101,260	0.0196	0.1386	0	1
colony	101,260	0.0307	0.1725	0	1
Labor_All_Indext-1	99,163	0.0760	0.2141	0	1
Labor_PCA_Indext-1	99,163	0.3254	0.9423	0	4.1469
Visa_Positive_Indext-1	102,144	0.0455	0.1492	0	.7857143
Visa_PCA_Indext-1	99,324	0.0895	0.3173	0	1.4855
Service_All_Indext-1	94,738	0.0423	0.1701	0	0.7561
Service_PCA_Indext-1	97,804	0.2789	0.9497	0	4.053
MP_All_Indext-1	98,449	0.5193	0.3442	0	1
MP_PCA_Indext-1	98,449	0.1863	0.1217	0	0.3608

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TABLE A2 The contents of positive coefficients of first component in Visa

Policy Areas	Contents of this Policy Areas	Coefficients
prov_9	Does the agreement positively address or facilitate persons obtaining residency in either party?	0.3344
prov_12	Does the agreement address the movement of undocumented migrant workers?	0.2611
prov_8	Does the agreement address the movement of migrant workers seeking employment in the country of destination?	0.2248
prov_13	Does the agreement address the movement of refugees?	0.2221
prov_6	Does the agreement address the movement of non-commercial visitors?	0.2149
prov_7	Does the agreement address the movement of migrant workers already employed by a company in the country of destinations	0.188
prov_3	Does the agreement call for regulatory cooperation or harmonization in migration regulation?	0.1795
prov_2	Does the agreement call for freedom of movement of workers/people	0.1557
prov_10	Does the agreement positively address or facilitate persons obtaining nationality/citizenship in either party?	0.1483
prov_31	Does the agreement refer to bilateral agreements related to migration concluded by the parties?	0.1404
prov_32	Does the agreement set up a dedicated organ or sub-committee to oversee migration issues?	0.1392
prov_29	Does the agreement allow parties to undertake temporary safeguard measures to bar entry of natural persons?	0.1373
prov_35	Does the agreement encourage parties to undertake mutually agreed cooperation activities?	0.12
prov_21	Does the agreement provide a visa extension or renewal mechanism?	0.0168

TABLE A3 The missing observations share in detailed policy areas for service

Policy Areas	Share	Policy Areas	Share
dis_mfn	0	trans_app	0
dis_nt	0	trans_comm	0
dr_inf	0	othdip_mon	0.0070
dr_licdec	0	othdip_grad	0.0208
dr_mutrec	0	struc_chapt1	0.0347
dr_objec	0	s_pol_gov	0.0417
dr_qual	0	s_exc_gov	0.0486
dr_qual_t	0	s_exc_air	0.0625
dr_qual_to	0	s_pol_jobs	0.0694
dr_sinwin	0	othdip_new	0.07639
dr_status	0	s_pol_subs	0.07639
exc	0	s_exc_airt	0.0972
exc_oth	0	s_exc_oth	0.0972
exc_pru_fins	0	s_pol_oth	0.125
exc_sec	0	othdip_add	0.1736
mov_prov	0	struc_hier	0.1736
s_lib_rat	0	mov_prov_cov	0.1875
s_lib_stand	0	mov_prov_emp	0.1875
safe_bop	0	othdip_sen	0.3819
safeg	0	othdip_lpr	0.4236
safeg_reneg	0	othdip_epr	0.5
struc_chapt	0	othdip_lcr	0.5069
trans	0	othdip_oth	0.5069
trans_app	0	othdip_ttr	0.5069
trans_comm	0		

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TABLE A4 The top 5 areas of three provisions

Policy areas	Coefficients	Contents of this policy areas
Labor		
prov_15	0.28	Does the agreement include reference to the effective enforcement of domestic labor laws?
prov_06	0.2775	Does the agreement include reference to protection/promotion of freedom of association, right to strike and/or collective bargaining?
prov_07	0.2775	Does the agreement include reference to the elimination of all forms of forced or compulsory labor?
prov_08	0.2775	Does the agreement include reference to the abolition of child labor
prov_14	0.2731	Does the agreement include reference to the non-derogation from domestic labor laws?
Visa		
prov_9	0.3319	Does the agreement positively address or facilitate persons obtaining residency in either party?
prov_12	0.2612	Does the agreement address the movement of undocumented migrant workers?
prov_8	0.2197	Does the agreement address the movement of migrant workers seeking employment in the country of destination?
prov_13	0.2163	Does the agreement address the movement of refugees?
prov_6	0.2091	Does the agreement address the movement of non-commercial visitors?
Service		
dr_inf	0.3064	Is there a provision requiring the Party's competent authority to inform the applicant of the decision concerning the application?
dr_status	0.2796	Is there a provision requiring the Party's competent authority to provide information concerning the status of the application?
s_pol_gov	0.2696	Government procurement
dr_objec	0.2591	Do the Parties have to administer the provisions in a reasonable, objective and impartial manner?
trans	0.2497	Is there a provision requiring publications of relevant laws and regulations or making the laws and regulations avaiable to interested persons?