

# Decomposing The Earnings Gap Between Canadian- And Foreign-trained Dentists

Pathways to Prosperity Conference  
Delta Hotel, Toronto

Yaw Owusu, PhD (& co-authors)  
Registered Nurses Association of Ontario (RNAO)

November 30, 2014

# Background

- We know quite a lot about labour market outcomes (LMOs) of immigrants in general through labour econ literature: skilled immigrants do better over time, regulations raise LMOs in the US context (Kleiner 2006, 2013)
- But not much is known about LMOs of immigrant health care professionals (who are a small sub-population) particularly, in Canada
- This is unfortunate because HCPs are a puzzle: highly skilled (hence should be able to migrate more easily) but are in highly regulated professions, with licensure, set fees (which may hinder integration)

# Research Question

- Foreign-trained dentists practicing in Canada earn approximately 30% (\$46,225) less than their locally (Canada/US) trained counterparts
  - What explains this gap? Is it a composition effect or are the same characteristics rewarded differently, as they need to adjust culturally and professionally to a different environment?
- Does the location of training affects dentists' earnings? We test whether or not the effect of location of training on earnings differs from the effect of location of birth
- **NOTE: Foreign-trained (FT) dentists do not necessarily imply foreign-born (FB) dentists**

# Why dentistry?

- Dentistry vs. medicine (physicians)
  - Dentists are free to set their fee level
    - Exception: gov't dental care programs have set fees
    - 2009 dental care expenditure: 6% public, 42% out-of-pocket, and 52% insurance (CIHI, 2011)
  - Physicians bill for a negotiated agreed scheduled fees

# Institutional Settings-Dentistry

- Two groups of individuals
  - Graduates of Accredited dental programs
  - Graduates of Non-accredited dental programs
    - must successfully complete an accredited 2-yr Qualifying or Degree Completion Program (**bridging program**) or the NDEB Equivalency Process to be eligible to write the national certification exam
    - Note: not all the FT necessarily go through bridging programs
- Both groups need to pass the NDEB Written and OSCE Examinations

# Data, Method and Results

- **Data**

- Cdn Census 2006, dentists aged 25-64. Unique: identify place of highest education not available in previous censuses.
- Other variables: pre-tax earnings (positive self-employment income +wages and salaries) **after expenses**, labour market and demographic variables

- **Method**

- Oaxaca (1973) –Blinder (1973) decomposition technique (log earnings as dep. var) 
$$\overline{\ln Y^{\text{CUST}}} - \overline{\ln Y^{\text{FT}}} = (\hat{\beta}_0^{\text{CUST}} - \hat{\beta}_0^{\text{FT}}) + (\hat{\beta}^{\text{CUST}} - \hat{\beta}^{\text{FT}})\bar{X}^{\text{FT}} + \hat{\beta}^{\text{CUST}}(\bar{X}^{\text{CUST}} - \bar{X}^{\text{FT}})$$
- Conduct robustness check on key finding

- **Main Results**

- We find that **location of training and, not location of birth exclusively**, is the key determinant of dentists' earnings potential in the labour market, in a context where dentists can charge their patients any fees

# Results

- 30% earnings gap between CT-trained and FT-trained dentists
  - 61% (approx. \$28,200) attributed to personal & market characteristics (composition effects)
  - Significant contributors:
    - **speaking a foreign language**: mediates return to education, possibly accent of speech taken to mean lower quality
    - **potential years of Cdn work experience**: timing of dental start-up, lost experience related to bridging or language training programs
    - **being female**: women have productivity preferences concerning labour market participation
    - **Toronto and Vancouver & provinces of residence**: competition
    - **being a visible minority**: hesitant to interpret this as ethnic discrimination since ethnicity is one of a bundle of characteristics (associated with source country, which includes language, school quality, etc.) that are hard to disentangle in these data

# Results

- 39% of the gap (approx. \$18,000) is attributed to diff in rates of return and unobservables. Most of this 39% gap has to do with the **mere fact of being trained abroad in itself** (i.e. diff. in constants)
  - **Possible patients' preferences** to see CUST over FT; differences in motivation, **work ethics**, omitted variables (e.g., # of patients, # of employees)
  - FT dentists may have to **adjust to the culture** and practice of dentistry in the destination nation
  - FT dentists (more likely to be immigrants) may have less **access to credit/financing** and/or **smaller networks** and therefore set up smaller practices with, for e.g., fewer dental assistants that are less productive and less remunerative. This could also cause them to become employees rather than self-employed.

# Results

- Differences in rates of return for characteristics
- Partly reflect three **challenges** often faced by FT dentists **related to their location of training**:
  - (1) differences in productivity due to differences in **depreciation costs** involved in **timing of starting dental practices** at different ages
  - (2) **firm seniority** for employees who start at different ages
  - (3) differences in **practice pattern** and **treatment delivery standards** and differences in the **quality of dental programs**

# Results from Robustness Checks

- Holding loc of birth constant in two models (CBCT vs. FBCT- who immigrated as children; CBCT vs. FBFT- who immigrated as adults underscore the **evidence of the influence of location of training and not location of birth per se in log earnings gap in CT vs. FT**
  - Suggest ethnic discrimination based on place of birth is not a factor
- Effect of training location is much larger among self-employed dentists
  - Perhaps, in part, reflects learned cultural/professional practices, cultural differences in interactions with patients, the number of patients, motivation or even unobserved differences in technical quality among those who passed the licensure exams successfully
- The location of training effect is larger for the FBFT dentists than for the OECD-FT dentists

# Policy Implications

- Solving the foreign credential recognition problem does not eliminate the earnings inequalities that exist in the labour market
- Policies directed to increase the number of re-training positions for FT graduates and, programs to improve communication and (occupation-specific) language skills of FT dentists
- Policies focusing on settlement, multiculturalism and integration, and the acculturation of foreign-trained health workers to local professional practice
- Future: Qualitative research to validate some of these correlations with the gap
- **Limitation**
  - loc of highest edu may be postgraduate edu (with bridging pg as highest edu) vs. CT & FT groups
  - Solution: segregate FB into those who immigrated as children and adults using the age at immigration variable
  - Census data do not capture all facets of dentists' practice structure, patients' characteristics, or environmental data

**EXTRA**

# Future Research

- Explore different treatment patterns between FTHP vs. DTHP using admin data
- Disentangle language effects, schooling quality, gender and visible minority status effects on log earnings of dentists
- Compare the outcomes of immigrants who arrived as adults and as children within ethnic groups to test for ethnic discrimination with a large sample size

## Oaxaca-Blinder decomposition of log earnings gap: Groups of practicing dentists

	CdnUS-trained vs. foreign-trained		Cdn-born, CdnUS-trained vs. foreign-born, CdnUS-trained (<18yrs)		Cdn-born, CdnUS-trained vs. foreign-born, foreign-trained (>25yrs)	
	Base Model 1	%	Model 2	%	Model 3	%
Group 1: Foreign-trained	11.239***		11.418***		11.223***	
	(0.058)		(0.059)		(0.061)	
Group 2: Canadian/US-trained	11.545***		11.596***		11.596***	
	(0.020)		(0.023)		(0.023)	
Log earnings gap	-0.306***		-0.178**		-0.372***	
	(0.061)		(0.063)		(0.065)	
Diff in characteristics (explained)	-0.187***	61	-0.152**	86	-0.212***	57
	(0.044)		(0.050)		(0.063)	
Unexplained: Rate of returns (ROR) & Unobservables	-0.119*	39	-0.026	14	-0.161*	43
	(0.059)		(0.072)		(0.071)	
<u>Components of unexplained</u>						
Diff. in ROR for characteristics	0.381		0.267		0.348	
	(0.352)		(0.316)		(0.391)	
Difference in constants	-0.500		-0.292		-0.509	
	(0.351)		(0.305)		(0.391)	

-Accounting for: hours, weeks, potential Cdn work experience, gender, education, visible min, Tor/Van, other CMAs, provinces, language, marital status, # of children.

-Main model= blue;

-Robust standard errors are in the parenthesis. Level of significance:

+ significant at 10%; \* significant at 5%; \*\*significant at 1%; \*\*\*significant at 0.1%

# Descriptive statistics of working dentists

For Decomposition Analyses based on Census 2006

<u>Working as dentists</u>	Group 1	Group 2	Canadian-born	Foreign-born	Foreign-born
<i>Panel 1: Labour Market Outcomes</i>	Foreign-Trained	Canada/US - trained	Canada/US -Trained	Canada/US -Trained	Foreign-Trained
Mean earnings in 2005	101,305	147,530	153,315	131,350	101,500
Mean hours worked in reference week	38.16	37.2	36.6	38.9	38.25
Mean weeks worked in 2005	45.8	46.8	46.6	47.1	46.0
Mean Age	47.0	44.0	44.7	42.1	46.9
Potential Canadian work experience (in years)	15.5	17.9	18.7	15.6	15.4
Number	1,385	14,125	10,400	3,720	1,370
	(9%)	(91%)	(67%)	(24%)	(9%)