

# Trends in Foreign-Educated Nurses in the US: A New Estimation Method

Workshop on Migration and Education, INED

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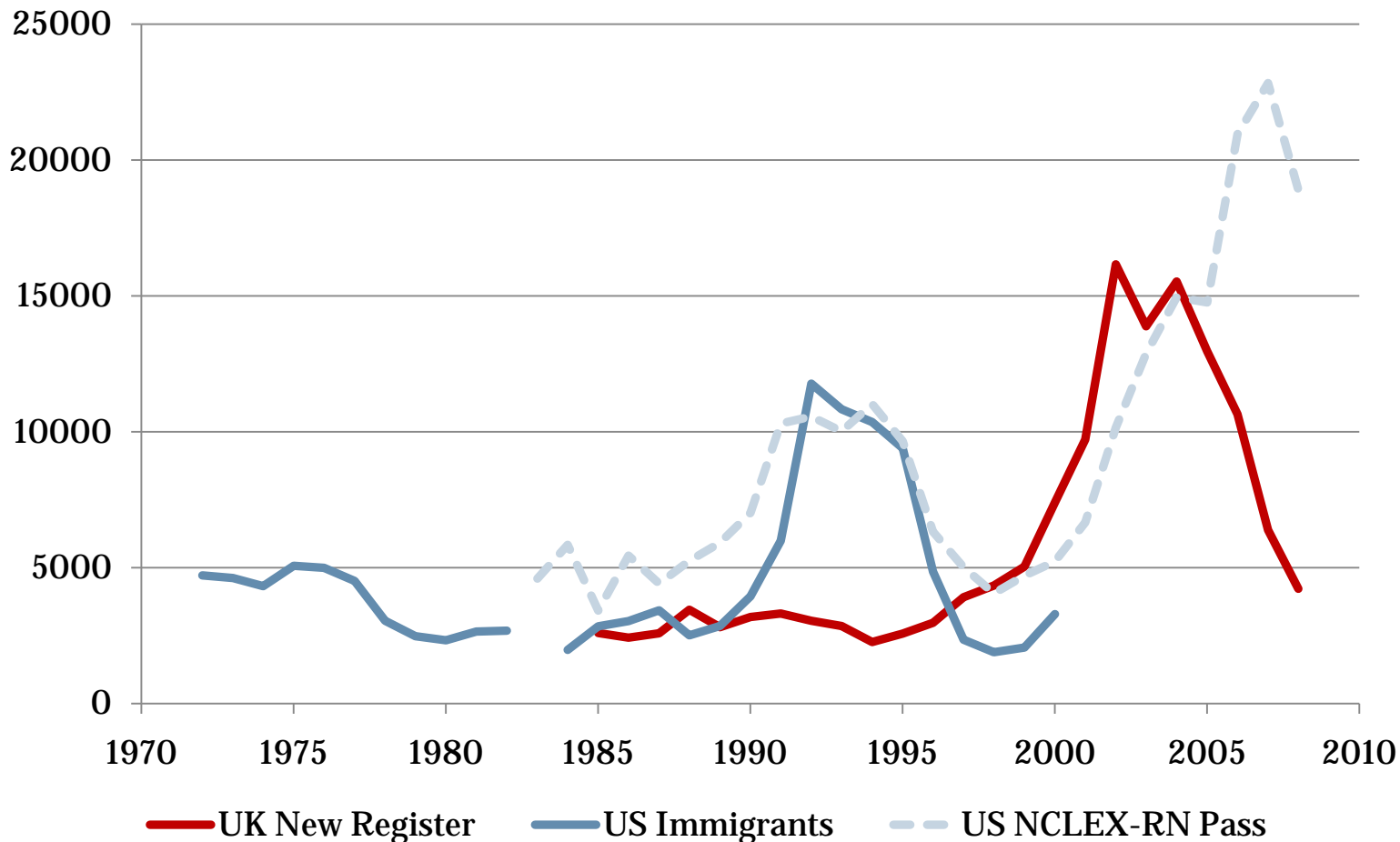
# Outline

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- ▶ **Background**
- ▶ **Objectives & Motivation**
- ▶ **Data and Estimation Strategy**
- ▶ **Results**
- ▶ **Discussion**



# International Migration of Nurses: An Emerging Phenomenon



Source: UK New Register (Nursing & Midwifery Council); US Immigrants (United States Department of Justice, 2000); US NCLEX-RN Pass (National council of State Boards of Nursing)

# Objectives:

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- ▶ **Estimate the number of foreign-educated nurses in the US for each country of origin using population census**
  - ▶ Provide a new methodology to estimate the size of foreign educated nurses using population census
  - ▶ Explain existing discrepancies between different sources of data
- ▶ **US case study**
  - ▶ Biggest labor market for nurses
  - ▶ Biggest importer of migrant nurses



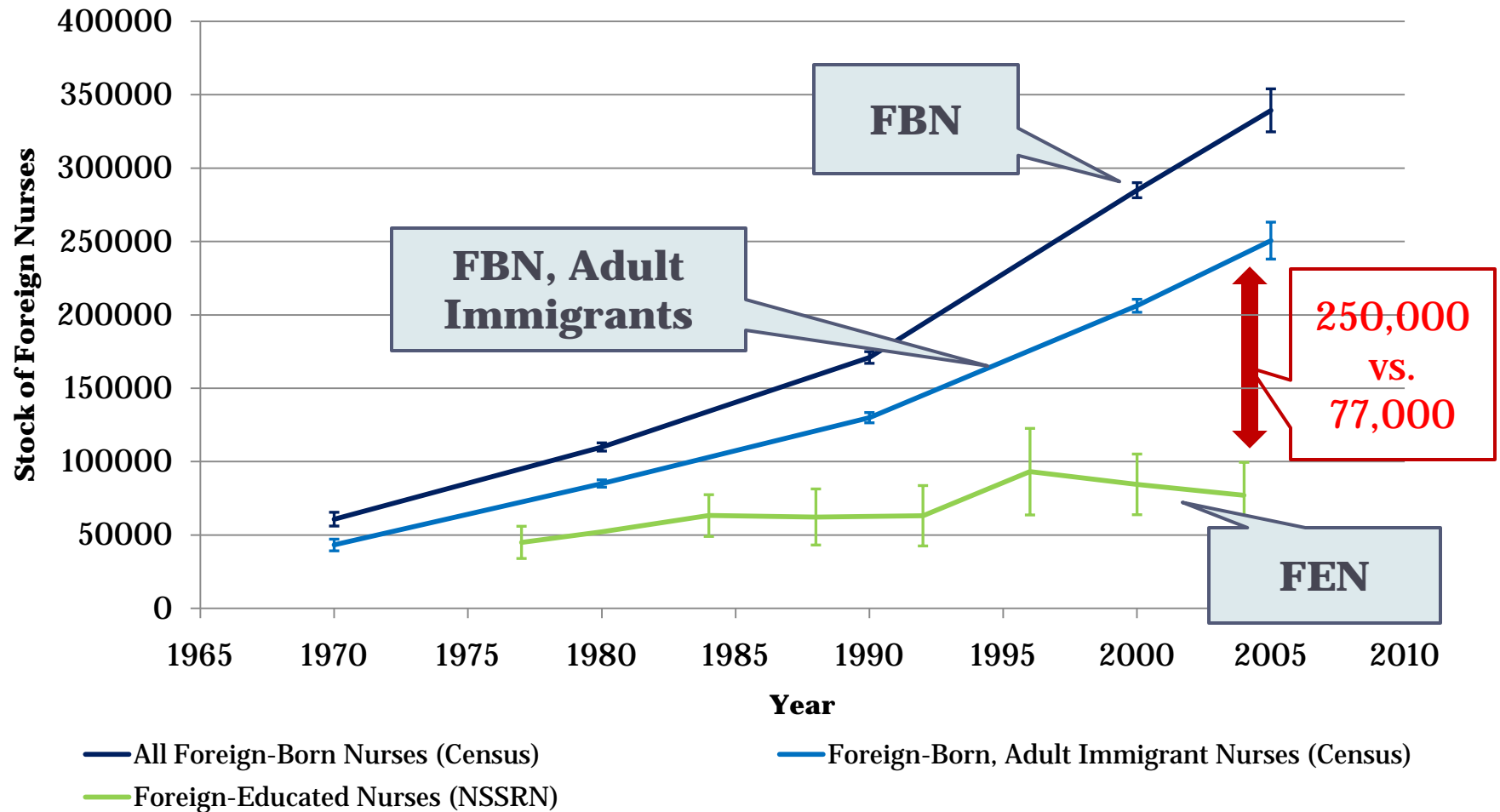
# Motivation

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- ▶ Consistent and reliable data is difficult to obtain because
  - ▶ It is extremely difficult to monitor *emigration*
  - ▶ Past studies rely heavily on *immigration* data from destination countries
- ▶ Estimates need to be
  - ▶ Comparable between different destination countries
  - ▶ Able to distinguish country of origin: to allocate loss to each country of origin
  - ▶ Able to separate immigrants who obtained their skills **before immigration** from those who obtained skills **after immigration**
- ▶ Ideal to have estimation methods which
  - ▶ Utilize similar survey instruments: e.g. Census
  - ▶ Measure **Foreign-educated nurses (FENs)**, rather than **Foreign-born nurses (FBNs)**
  - ▶ Previous studies have used adult-immigrant FBNs as approximate measure of FBNs: Probably not appropriate



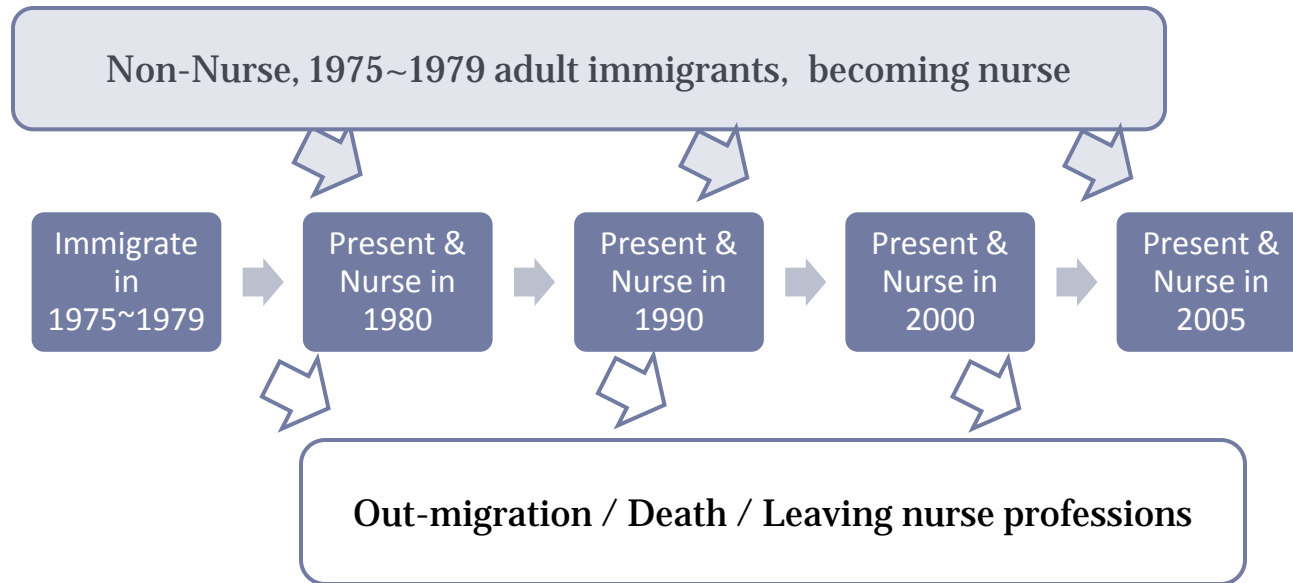
# Stock of Foreign Nurses in the US: Discrepancies between data sources



Source: UK New Register (Nursing & Midwifery Council); US Immigrants (United States Department of Justice, 2000); US NCLEX-RN Pass (National council of State Boards of Nursing)

# Estimation Strategy

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- ▶ **Aim: To distinguish FENs from US-educated FBNs**
  - ▶ **In closed cohorts , we should observe a decline within each cohort**
  - ▶ **The number of nurses can increase within cohorts only if Non-Nurse Immigrants become nurses in US.**
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# Data and Method for Each Step

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- ▶ **Step 1: Create Cohorts of Nurse Immigrants**
  - ▶ Data: Census 1970, 1980, 1990, 2000, 2005
  - ▶ Method: create cohort based on year of immigration (5-year category), country of birth, and observed repeatedly
  
- ▶ **Step 2: Calculation of survival rates**
  - ▶ Data: NSSRN 1980, 1984, 1988, 1992, 1996, 2004 and 2008
  - ▶ Method: Intercensal method to calculate survivorship ratio
  - ▶ Age of nurses were considered as main determinants of “survival” in the US nurse labor force
  
- ▶ **Step 3: Combine cohort results and survival rate to estimate the past and current stock of FENs in the US**



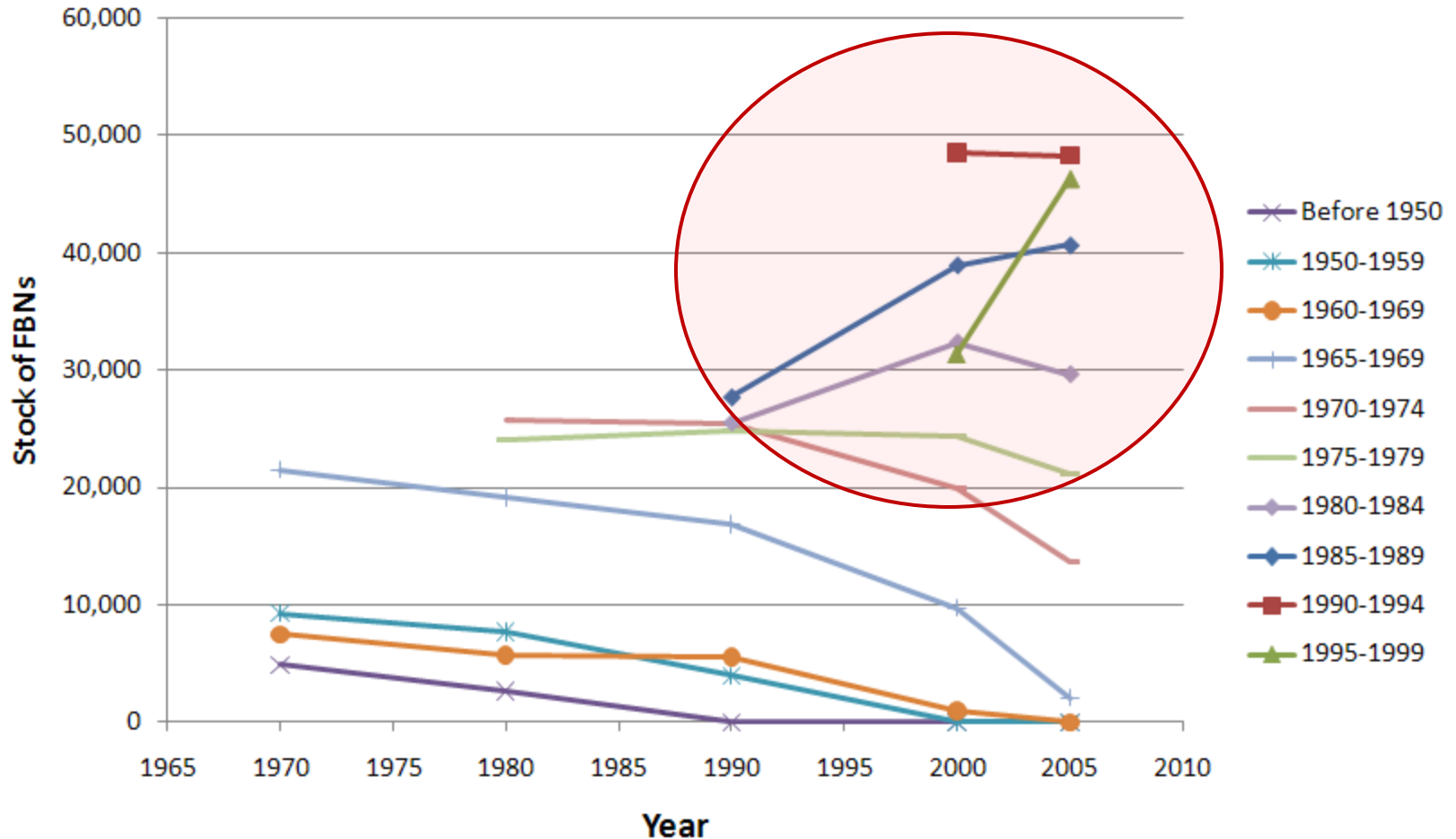


# Comparison of Data Sources: Nurses in the US

	Census (5%)	NSSRN
Years	1970*, 1980, 1990, 2000, 2005* (ACS)	1979, 1984, 1988, 1992, 1996, 2000, 2004
Sample Size (average)		
Total Registered Nurses (RNs)	10,400-116,500	16,000-34,000
Foreign RNs	500-9,300	450-1,300
Definition of RNs	Self-reported occupation	Those with valid Licensure
Definition of Foreign RNs	Based on <b>place of birth (FBNs)</b>	Based on <b>location of primary nursing education (FENs)</b>
Sampling	Systematic Sampling of Households (long form questionnaire)	Stratified sampling based on the compiled list from state licensure body

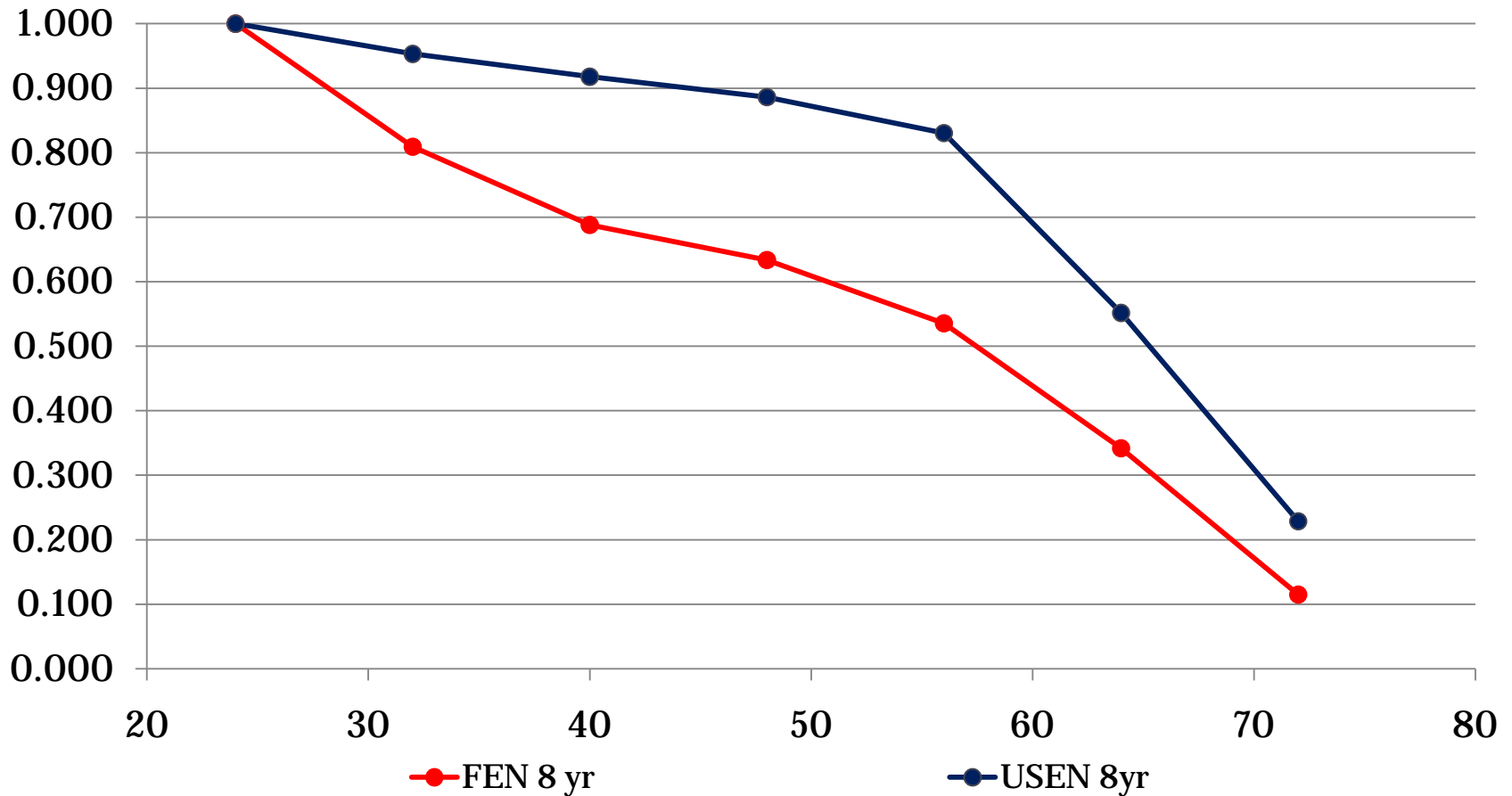
\* 1 % of population sample

# Step 1: Cohort of Nurse Immigrants



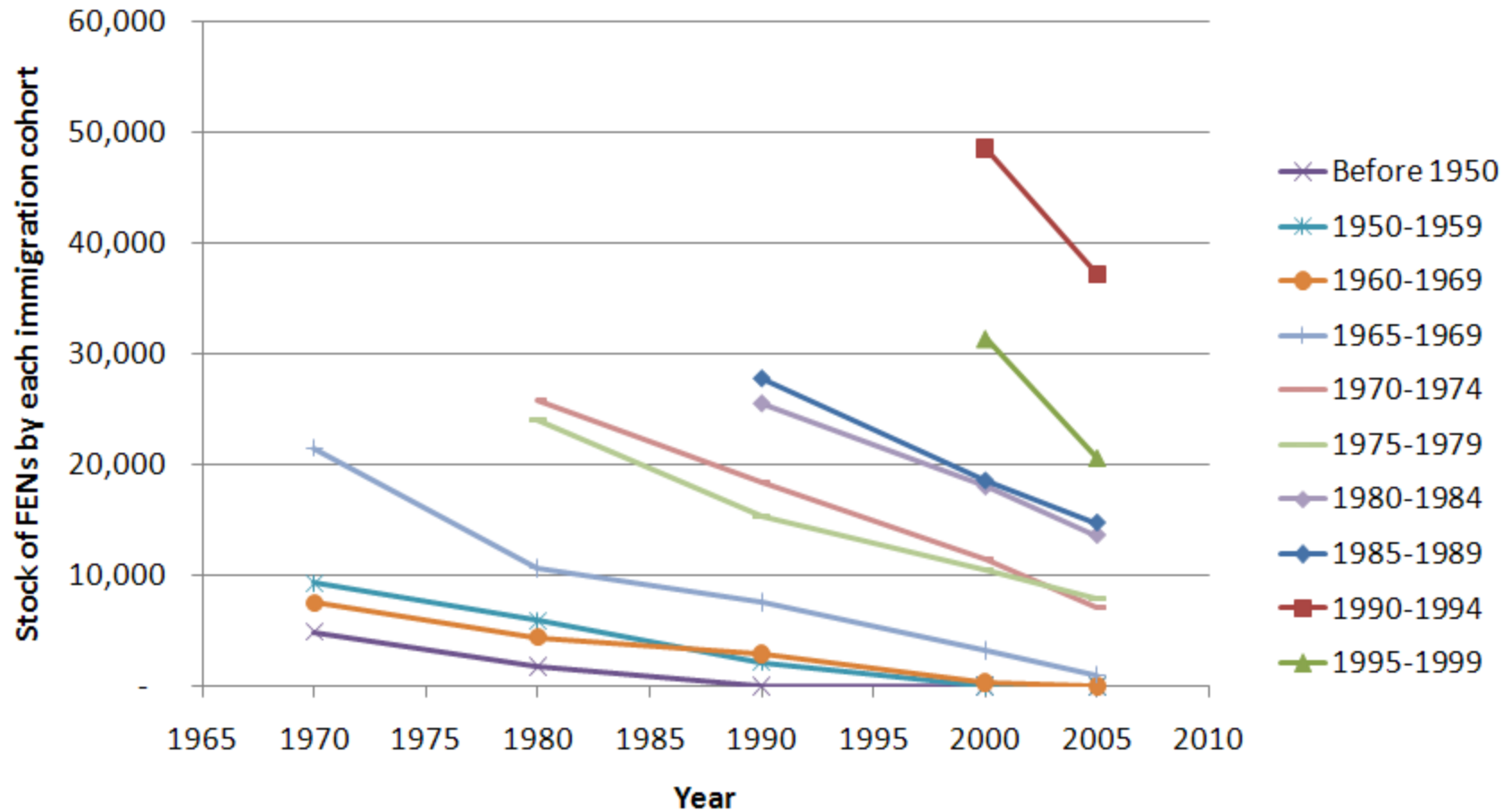
Source: US Population Census, 1970, 1980, 1990, 2000; American Community Survey, 2005

# Step 2: Survivorship curve



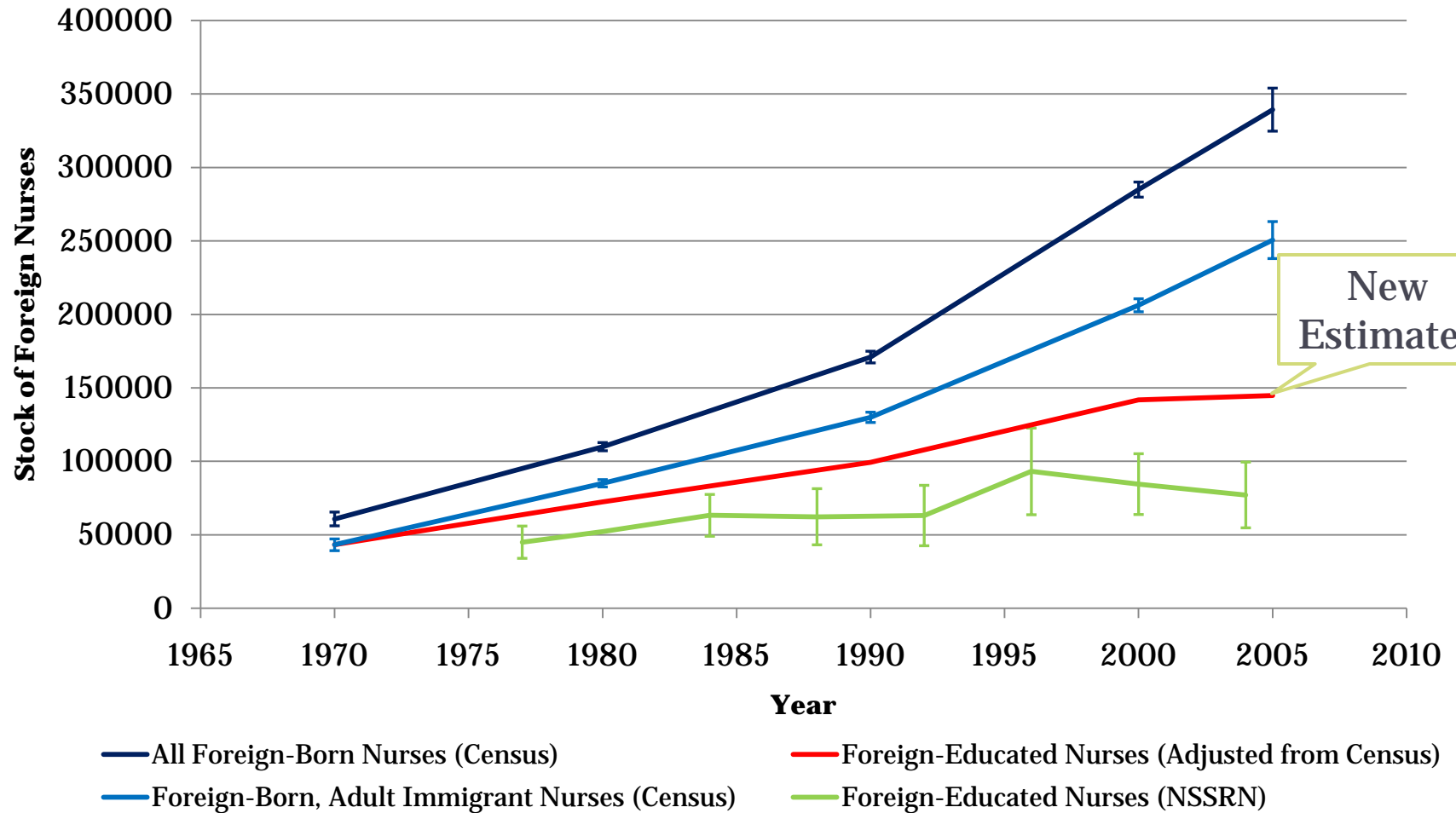
Source: National Sample Survey of Registered Nurses, 1979, 1984, 1988, 1992, 1996, 2000, and 2004

# Step 3: Combining Step 1 and 2



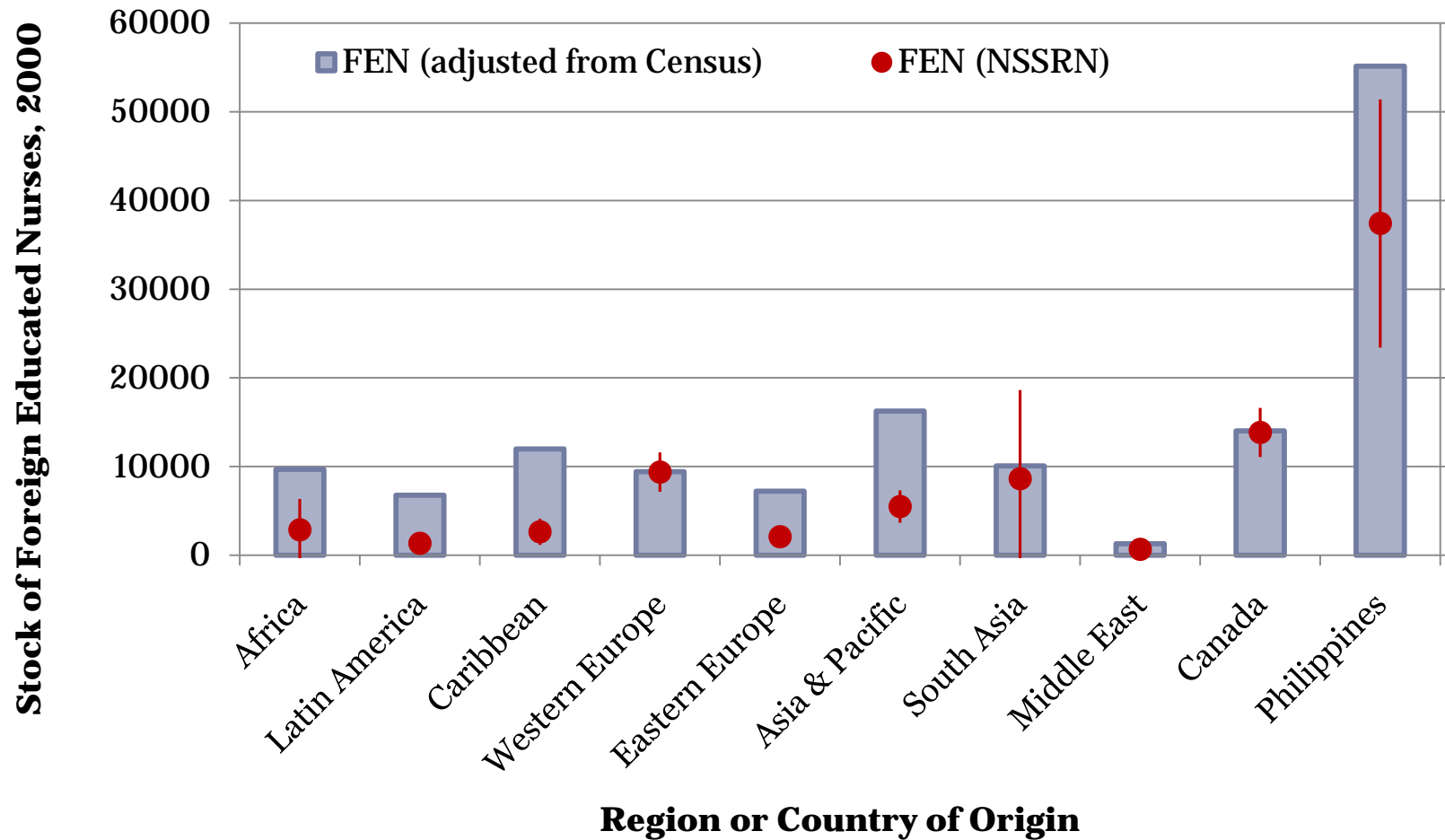
Source: US Population Census, 1970, 1980, 1990 and 2000; American Community Survey, 2005  
National Sample Survey of Registered Nurses, 1979, 1984, 1988, 1992, 1996, 2000, and 2004

# Results: Temporal Trend



Source: UK New Register (Nursing & Midwifery Council); US Immigrants (United States Department of Justice, 2000); US NCLEX-RN Pass (National Council of State Boards of Nursing)

# Results: Census versus NSSRN, 2000



Source: UK New Register (Nursing & Midwifery Council); US Immigrants (United States Department of Justice, 2000); US NCLEX-RN Pass (National council of State Boards of Nursing)

# Results

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- ▶ **Number of FENs has increased from 42,800 in 1970 (4.1% of all RNs) to 144,762 in 2005 (5.8% of all RNs)**
  - ▶ **43% of Foreign Born Nurses were Foreign-Educated Nurses; FBNs is not appropriate approximation for FENs**
  - ▶ **Differences between NSSRN and Census remain, especially for nurses from African, Latin American, Caribbean and Asian countries**
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# Discussion

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## ▶ Causes of Discrepancy

- ▶ Overestimation of FENs in Census (some of US educated FBNs are still categorized as FENs)
  - ▶ Underestimation of drop-out rate
  - ▶ Immigrants become nurses right after their immigration
- ▶ Underestimation of FENs in NSSRN
  - ▶ Concerns of sampling frame, sampling design and underestimation of minorities
  - ▶ Estimates for Black, Asian and Hispanic RNs is approximately 50~60% of Census RNs estimates

## ▶ Limitations

- ▶ These estimates only include FENs who have successfully obtained RN jobs in the US
  - ▶ Nurses who were educated in their own country and decided not to work in the US may be still considered as a loss to the country of origin
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# Take Home Message

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- ▶ Usage of Foreign-Born nurses as a measure of brain drain should be cautioned against
- ▶ This method can be applied to other destination countries; as long as they have:
  - ▶ Series of censuses which include questions on occupation, country of birth, and year of immigration
  - ▶ Drop-out rate of foreign nurses from domestic labor market
  - ▶ Historical background on immigration policy and licensure policy to understand limitations placed upon foreign-educated nurses entering the destination country





**THANK YOU**