

U.S. Export Postsecondary Education Price Indexes

ISIC 8530 Higher Education

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37th Voorburg Group Meeting

September 13, 15, 20 and 22, 2022



Agenda

- **Definition of the industry**
 - ▶ **Market Conditions**
- **Measurement of XPI***
 - ▶ **General Framework**
 - ▶ **Measurement Issues**
 - ▶ **Methodology**
- **Evaluation of measurement**



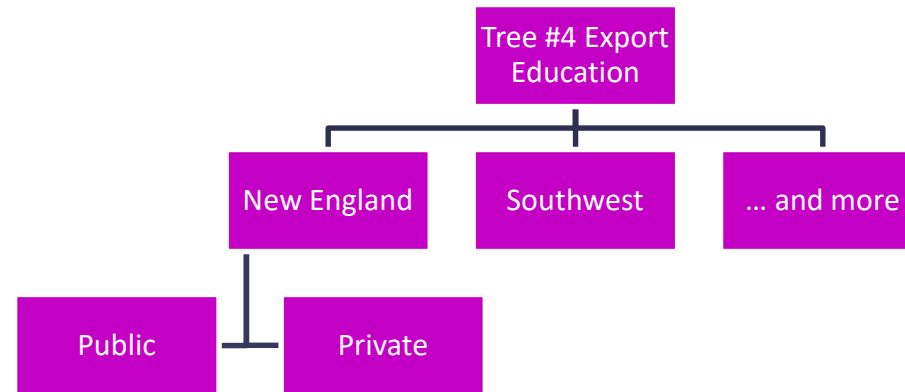
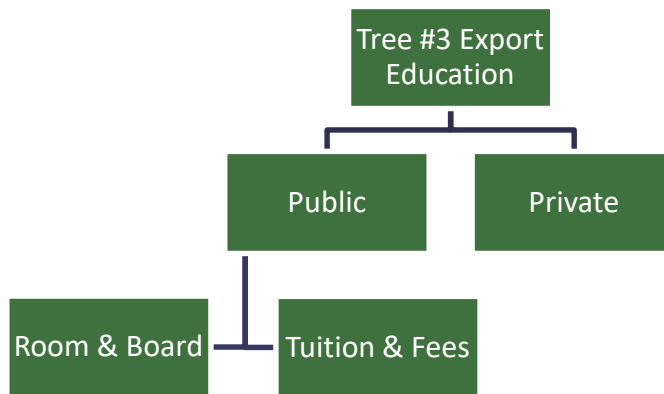
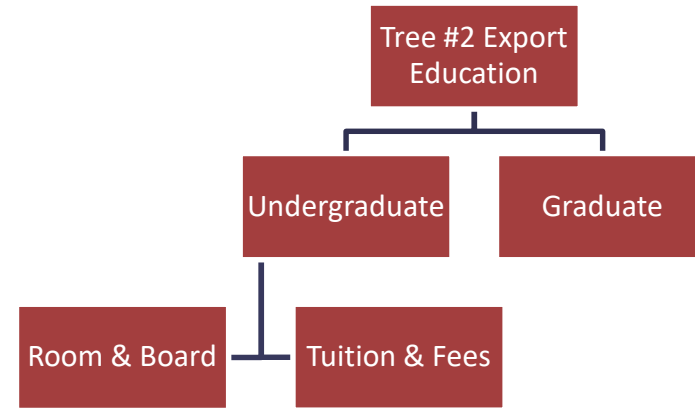
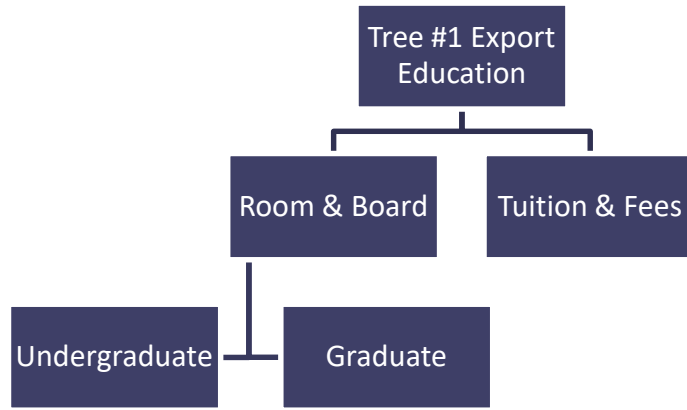
* XPI = Export Price Index

Definition of the Industry

| ISIC Rev. 4 | BEA International Transaction Accounts | BLS – International Services Price Indexes |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ISIC 8530 Higher Education | ISI 6110 – Educational services | Export Postsecondary Education Price Indexes |
| <p>Includes the provision of post-secondary non-tertiary and tertiary education, including granting of degrees at baccalaureate, graduate or post-graduate level. The requirement for admission is at least a high school diploma or equivalent general academic training. Education can be provided in classrooms or through radio, television broadcast, Internet or correspondence.</p> <p>Post-secondary non-tertiary education, first stage of tertiary education (not leading to an advanced research qualification), second stage of tertiary education (leading to an advanced research qualification) and performing arts schools providing higher education are within scope.</p> | <p>BEA normally follows the IMF’s Balance of Payments and International Investment Position Manual when it comes to defining their international transaction accounts. When it comes to their services surveys, BEA categorizes respondents according to industry (ISI) classifications which are based on NAICS codes.</p> <p>ISI 6110 is technically based off NAICS 611 which covers all educational services. This classification covers instruction and training in a wide variety of subjects related to a various establishments such as elementary schools, colleges, universities, and training centers. BEA’s surveys do not ask for further classification even though NAICS provides more detailed codes.</p> | <p>The price indexes aggregation structures were based on the National Center for Education Statistics’ Integrated Postsecondary Education Data categories, often referred to as IPEDS.</p> |

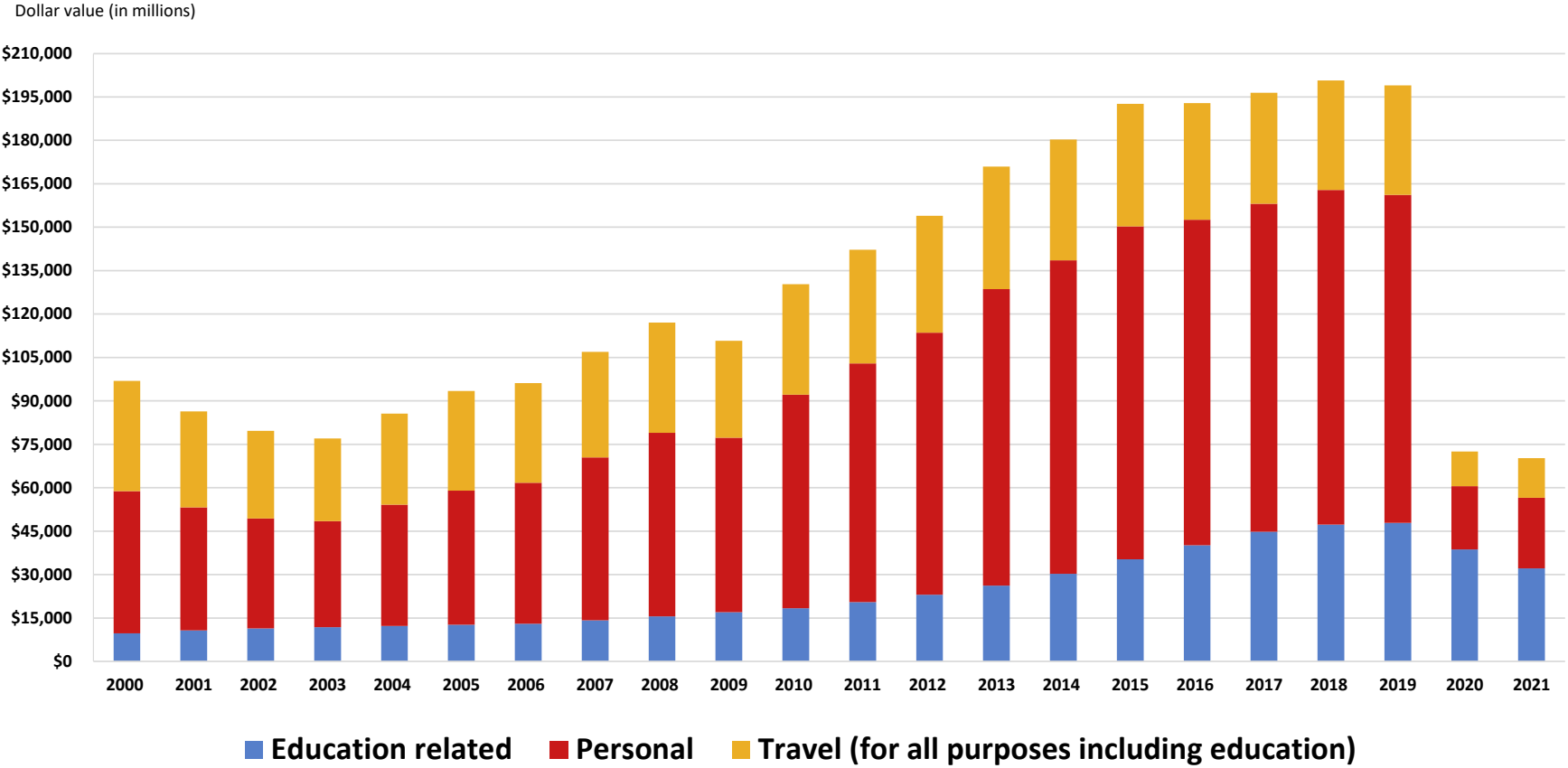


Definition of the Industry - BLS



Market Conditions

Chart 1. BEA international services, export education and its related accounts



Source: Bureau of Economic Analysis, Table 2.1. U.S. Trade in Services, by Type of Service



Market Conditions

Table 1. 2021's Top 10 U.S. export education trade partners by export dollar value (in millions)

| Country | 2019 | 2020 | 2021 |
|--------------|----------|----------|----------|
| China | \$17,801 | \$14,333 | \$10,544 |
| India | 7,695 | 6,189 | 5,886 |
| South Korea | 2,505 | 1,962 | 1,530 |
| Canada | 1,411 | 1,191 | 1,083 |
| Vietnam | 1,018 | 878 | 721 |
| Saudi Arabia | 1,426 | 1,017 | 717 |
| Taiwan | 1,054 | 863 | 706 |
| Brazil | 901 | 749 | 620 |
| Japan | 777 | 579 | 451 |
| Nigeria | 530 | 459 | 449 |

Source: Bureau of Economic Analysis, Table 2.2. U.S. Trade in Services, by Type of Service and by Country or Affiliation

Table 2. 2021's Top 10 countries of citizenship with the largest number of international students

| Country of Citizenship | 2021 Active Student Count |
|------------------------|---------------------------|
| China | 348,992 |
| India | 232,851 |
| South Korea | 58,787 |
| Canada | 37,453 |
| Brazil | 33,552 |
| Vietnam | 29,597 |
| Saudi Arabia | 28,600 |
| Taiwan | 25,406 |
| Japan | 20,144 |
| Mexico | 19,680 |

Source: U.S. Immigration and Customs Enforcement, 2021 SEVIS by the Numbers Report



Market Conditions

- In 2021, foreign students in the United States pursued 1,142,352 degrees in higher education: 69,495 (6%) Associate, 443,440 (39%) Bachelor's, 438,390 (38%) Master's, 191,027 (17%) Doctoral.*
- There were 49,630 foreign students for K-12 education in 2021 with roughly 10% in primary school, while the remainder were in secondary school (grades 9-12). China sent the most students with 17,375.
- The main providers of educational services included over 6,000 postsecondary institutions, 98,000 public schools, and 30,000 private schools in 2020.†

* U.S. Custom's Student and Exchange Visitor Program 2021 report notes that one student might partake in more than one level of education in a given calendar year.

† Institutions are those that have a written agreement with the Department of Education that allow them to participate in Title IV federal student financial assistance programs. The term "schools" refer to non-postsecondary educational institutes: primary, secondary, other.



Measurement of XPI – National Accounts Framework

- The Export Postsecondary Education Price Index was intended for use in BEA's export education account to deflate the **Net Exports portion of GDP**.

Table 3. Education account within the international transaction accounts' framework by export dollar value (in millions)

| Account | 2021 |
|------------------------------------------------------|-------------|
| Balance on current account | (\$846,354) |
| Exports of goods and services | 3,780,154 |
| Exports of services | 795,273 |
| Travel (for all purposes including education) | 70,214 |
| Personal | 56,525 |
| Education | 32,104 |

Source: Bureau of Economic Analysis, U.S. International Transactions Tables

Measurement of XPI - Measurement Issues

- **The data source:** U.S. Department of Education National Center for Education Statistics' Integrated Postsecondary Education Data System (IPEDS).
 - ▶ **Administrative data source:** IPEDS covers the universe of colleges and universities in the United States.
 - ▶ **Pricing data:** average prices paid for tuition fees, room, and/or board for a full academic year by a full-time student.
 - ▶ **Weights:** calculated by multiplying the number of foreign students by the prices of their respective institution.

* as previously mentioned, classification was based on how the data could be aggregated, not off a particular classification system



Measurement of XPI – Methodology, Pricing and Weights

The 4 different classification possibilities

- Grad or undergrad
- *Tuition & Fees or Room & Board



Total foreign students at a given institute

- Number of foreign graduate students
- Number of foreign undergraduate students



ExEd Unit - weights for the four trees:

- Tuition & Fees and Room & Board
- Public and Private
- Undergraduate and Graduate
- Regional

For example, if Studyhard University charges \$10,500 for out-of-state tuition & fees for its undergraduates and it educates 75 foreign undergraduates, then the ExEd unit weight for that university's undergraduate tuition & fees would be:

$$\$10,500 * 75 = \$787,500$$

*Preferred price basis to be used in indexes

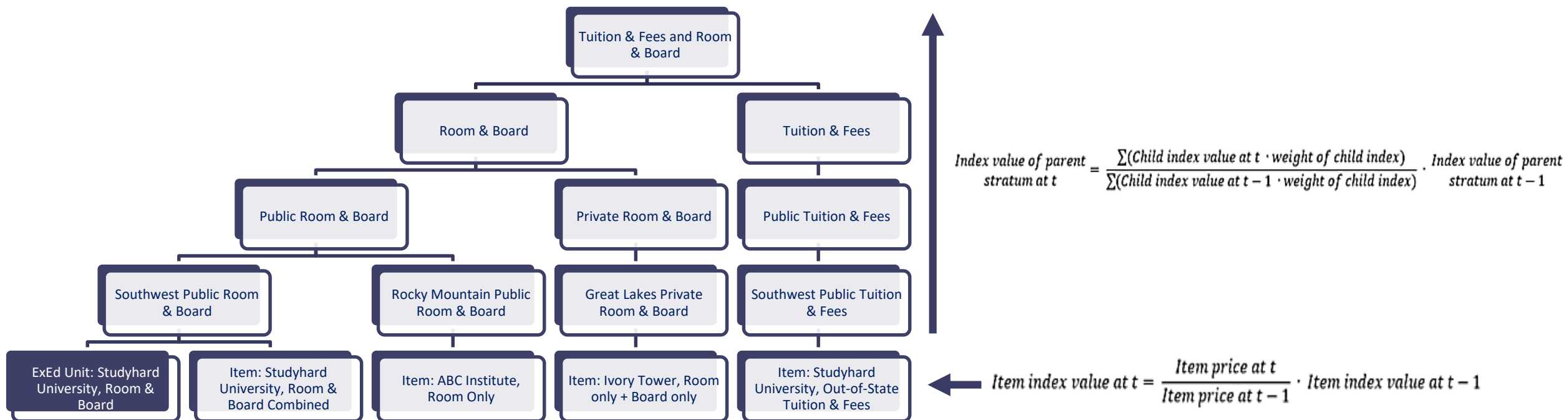
PRICE BASIS FOR TUITION & FEES

1. Out-of-State Tuition & Fees
2. Out-of-State Tuition only
3. In-State Tuition & Fees
4. In-State Tuition only
5. In-District Tuition & Fees
6. In-District Tuition Only

PRICE BASIS FOR ROOM & BOARD

1. Room & Board (combined)
2. Room only + Board only
3. Room only
4. Board only

Measurement of XPI – Methodology, Estimation



- Modified Laspeyres formula used for estimation with weights lagged by one year, updated annually
- Calculated and published annually, based on the academic year, beginning in June 2007 (May's release)
- The *Tuition & Fees and Room & Board* price index was used as the top aggregate index although other trees were published.
- Discontinued in February 2008 (January's release)



Measurement of XPI – Methodology, Out of Scope

- Some schools were considered out-of-scope for XPI.
 - ▶ Military and theological schools – fees likely covered by the government or by an entity other than the student
 - ▶ Schools that primarily provide “first professional” degrees, such as law or medical degrees – different cost structure
 - ▶ Schools that primarily provide online education – not considered within scope for XPI
 - ▶ Schools were excluded if offered outside the geographic boundaries of the United States
- Prices/expenditures for a student’s books, local transportation, off-campus living expenses were not included because of a lack of data.

Evaluation of measurement

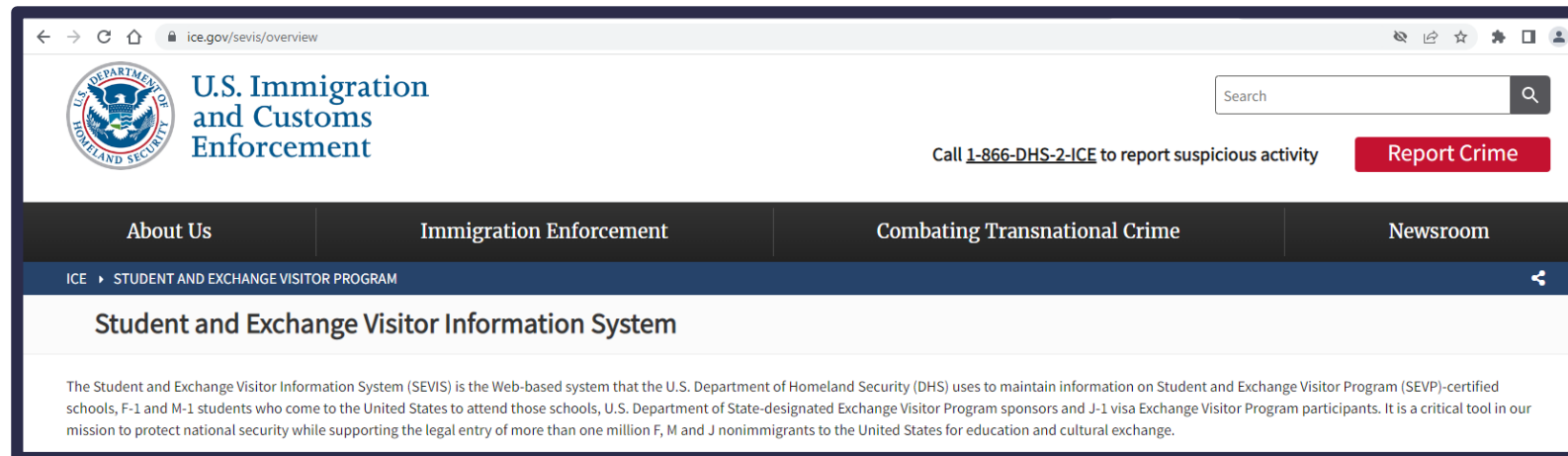
- Benchmarking – comparing XPI against others
 - ▶ CPI College Tuition – index values
 - ▶ Commonfund’s Higher Education Price Index (HEPI) – index values
 - ▶ IIE’s Open Doors – student counts, some prices
 - ▶ DHS - Student and Exchange Visitor Information System (SEVIS) – student counts

- Potential improvements:
 - ▶ Calculation of superlative indexes, such as Fisher or Tornqvist
 - ▶ Revision of Export Education historical price indexes
 - ▶ Inclusion of additional education prices, such as books and living expenses
 - ▶ Inclusion of English as a second language, professional training, and other non-college/university postsecondary education options
 - ▶ Account for financial aid
 - ▶ Inclusion of first professional institutions



Evaluation of measurement

- Second chance: mirror what BEA measures?
 - ▶ Comprehensive and robust secondary sources
 - ▶ Stick to postsecondary education, or cover all export education
 - ▶ Educational versus Immigration data (both statutory administrative data sources)
 - ▶ Possible use of NAICS 611 classification
 - ▶ In-house technical obstacles, start with publishing experimental indexes



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