

Perspectives on Computational Research: Proposal

To Move or not to Move:
Disciplines and Geographical Mobility
from Origin to Occupation

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Research Question

- ❖ What is the effect of educational discipline on geographical mobility from original location to occupational location ?
 - ❖ Original location: place of high school
- ❖ To be more specific:
 - ❖ 1. Is occupational location related to original location?
 - ❖ 2. If yes, does the relationship remain the same across all disciplines (majors)?

Literature Review

- ❖ Theoretical Framework
 - ❖ Social Stratification
 - ❖ Education, Occupation
 - ❖ Geographical Mobility: Internal Migration
- ❖ Empirical Studies

Hypotheses

- ❖ H_1: Locational Dependence Hypothesis
 - ❖ H_1a: Occupational location is influenced by place of origin
 - ❖ H_1b: Occupational location is not significantly influenced by place of origin
- ❖ H_2: Discipline Interference Hypothesis
 - ❖ H_2a: The geographical mobility is relevant to disciplines of college education
 - ❖ H_2a: The geographical mobility is not relevant to disciplines of college education

Data & Method

- ❖ Data:

- ❖ The 2015 National Survey of College Graduates (NSCG)
 - ❖ longitudinal biennial survey

- ❖ Method:

- ❖ Supervised learning:
 - ❖ SVM or tree-based model

Data Glimpse

Variable: NBAMED
Description: Field of study of for first bachelor's degree - best code
Question: What is the major field of study for your first BA degree? (best code)
Domain: All respondents
SESTAT Variable: J_ED_BA_MAJOR_ED_CAT_NEW
SOURCE (Survey Question Number): CGO: SYSTEM/CGN: SYSTEM

Value/Description	Unweighted	Weighted
116710: Computer and information sciences	679	347,933
116730: Computer science	2,648	1,036,957
116740: Computer systems analysis	59	47,587
116760: Information services and systems	745	344,713
116770: OTHER computer and information sciences	200	107,179
128410: Applied mathematics	261	70,527
128420: Mathematics, general	2,567	862,592
128430: Operations research	48	18,305
128440: Statistics	178	55,738
128450: OTHER mathematics	45	16,845
216050: Animal sciences	423	180,284
216060: Food sciences and technology	178	45,369
216070: Plant sciences	369	111,708
216080: OTHER agricultural sciences	163	71,692
226310: Biochemistry and biophysics	736	236,030
226320: Biology, general	4,616	2,070,699
226330: Botany	112	29,224
226340: Cell and molecular biology	341	126,355

Variable: EMST
Description: State/country code for employer
Question: Derived within SESTAT from reported information
Domain: Working during the week of February 1, 2015
SESTAT Variable: E_JOB_EMPLR_ST_CTRY_CD
SOURCE (Survey Question Number): CGO: SYSTEM/CGN: SYSTEM

Value/Description	Unweighted	Weighted
085: New England region, state not specified	4,684	2,733,292
086: Middle Atlantic region, state not specified	11,144	6,694,018
087: East North Central region, state not specified	11,518	6,789,947
088: West North Central region, state not specified	5,588	3,305,209
089: South Atlantic region, state not specified	14,014	8,754,737
090: East South Central region, state not specified	2,717	2,104,318
091: West South Central region, state not specified	6,873	4,322,341
092: Mountain region, state not specified	4,899	3,033,113
093: Pacific region, state not specified	14,726	7,754,033
096: U.S. Territory, not specified	580	414,047
148: Europe, not specified	19	10,579
245: Asia, not specified	20	6,395
304: North America, not specified	10	1,655
315: Mexico	5	10,995
318: Central America, not specified	3	1,345
353: Caribbean, not specified	1	1,735
389: South America, not specified	2	62
462: Africa, not specified	6	921
527: Oceania, not specified	3	1,574

Difficulties

- ❖ Data: NSCG 🙌 NLS? CPS?
 - ❖ the accuracy of location information?
 - ❖ biased to science and engineering workforce?
- ❖ Method:
 - ❖ The ability of SVM in dealing with a relatively large sample size and small number of features
 - ❖ Possible solutions:
 - ❖ adjust the model?
 - ❖ use tree-based model instead?

References

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