Higher Education Analytics:
A Study of the Flow of College Applicants between US States

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ABSTRACT

The dispersion of talent within the United States is not uniform. There is sufficient statistical evidence to suggest that there is an interstate brain drain phenomenon occurring within the country. The authors set out to examine this by first determining whether states could be classified into four broad categories of talent: 'repel', 'loyal', 'magnet' and 'boring'. To do this they observed the relative pull or push of talent and looked at the results relative to which states tended to retain or lose their native talent, as well as which states tended to attract a large or small number of the migratory student population seeking education outside of their own respective home states. Once they completed this categorization, the authors attempted to see whether within these groupings, a set of randomly selected independent attributes or themes could be statistically significant to support these categorizations.

KEYWORDS

INTRODUCTION

Over the years the topic of education in the United States of America has been heavily debated, particularly from an overall return on investment perspective. Access to higher education and the impact of student loans on the economy have moved to the forefront of the public discussion (Perna & Titus, 2004). Half a century ago, a student could finance his or her studies out of saved money or a temporary job, nowadays students need to use bank loans to be able to access college and university education (Doss, Jones, Sumrall, Henley, McElreath, Lackey & Gokaraju, 2015). Higher education has become a luxury item only accessible to smaller proportion of the population (Sirer, Maroulis, Guimera, Wilensky & Amaral, 2015). Authors have reported that a cost escalation in elite higher education has changed the education landscape in the last decade (Johnson & Leachman, 2013). This phenomenon was aggravated by repeated and systemic public cuts in education investment (Hipp & Boessen, 2016). Although this problem has been mainly observed in the United States, a number of international authors have reported the adverse effects of this phenomenon in other countries such as Colombia (García-Suaza, Guataquí, Guerra & Maldonado, 2014) and Australia (Daly, Lewis, Corliss & Heaslip 2015).

The discussion however, has generally involved the effects on the broader United States as a whole (Tuckman, 1970; Perna & Titus, 2004; Suhonen, 2013; Ernstson & Fransson, 2015). The question as to whether within the United States there have been actions, either actively or not, by states to lure or for that matter deter students, has been far less covered (Faggian & Franklin, 2014; Amcoff & Niedomysl, 2015). We believe that this is an area worthy of consideration because it has direct ties to the return on investment debate (Paulsen, 1998; Hout, 2012; Petronijevic, 2013; Canche, 2014; Cain 2014; Jaquette, Curs & Posselt, 2015; Toutkoushian & Paulsen, 2016), especially given the vast difference in tuition costs for in-state versus out-of-state students (Hsing & Mixon, 1996; Maroulis, 2016; Jaquette, Curs, 2015), as well as the potential impact such state level actions could have on companies seeking to invest and look for active pipelines of talent (Korpi & Clark, 2015; Blackwell, Fischer, McFarlane & Dollery, 2015; Jabbar, 2016).

A college student is not a new concept in the United States of America; however, the volume of young adults attending college grows every year (National Center for Education Statistics) and the location they choose for college has great effects on not only economics but the distribution of human capital. The reason or factors that help the students identify their institution of choice have been looked at by researchers and have been statistically significant in decision making for college.

Programs similar to Georgia's Helping Outstanding Pupils Educationally HOPE Program, which sponsors a merit based scholarship for student who choose to attend in-state colleges has shown great promise in keeping migration low and increasing attendance to in-state colleges (Cornwell, Mustard & Sridhar, 2006). Several states have adopted similar programs to Georgia's HOPE Program and analysis shows that most states would benefit from state sponsored merit based scholarships (Cooke & Boyle, 2011). This is a heavily researched topic in the field and has proven results. There are other government-sponsored subsidies such as Pell Grants that have more stringent rules based on financial requirement, which can be connected to student migration.

Traditional migration factors like financials and economic value of an education (Tuckman, 1970) is directly important to public policy makers; however, there are non-traditional factors which have also proven to have an impact on migration. These non-traditional factors also can have a direct effect on the migration of students in and out of a state. A state's size and its proximity to other states can have negative or positive effects on student migration (Cooke & Boyle, 2011). Financial factors that were noted above have a strong impact on student migration; however additional factors such as violent crimes, taxes, existing advanced degrees in state, and political affiliation can affect student migration. Existing state factors that have a less direct connection to new students but can have a direct impact to their migration.

METHOD

We looked at residence and migration data of all first-time degree or certificate-seeking undergraduates in 4-year degree-granting postsecondary institutions who graduated from high school in the previous 12 months, by state or jurisdiction (National Center for Education Statistics, 2014) to determine our four broad state classifiers. Additionally, we selected random independent variables (see Table 1) from a variety of years spanning 2007 to 2015, which we felt were representative of students' desire for mobility (either to stay or migrate).

When selecting our independent variables, we openly discussed factors, which could be directly or indirectly associated with attracting talent to states and recognized that there would be cases where we would not be able to access our "ideal" data sets or be forced to use outdated data. In these cases, we generally agreed to use the most recent and available data, provided we felt it was (1) reliable, that is, from a trusted source (2) it was still reasonably relevant, that is, not materially out of date given the particular variable being considered or (3) it could act as an approximation in cases where the data was just not available - availability being defined as freely accessible on the Internet.

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