POLICY TO INCREASE GRADUATION RATE: EXAMPLE OF CALIFORNIA STATE UNIVERSITY

ПОЛИТИКА ПО УВЕЛИЧЕНИЮ ДОЛИ ВЫПУСКНИКОВ: ПРИМЕР УНИВЕРСИТЕТА ШТАТА КАЛИФОРНИЯ

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Yeromenko Denys, 3rd year student, School of International Relations, Saint Petersburg State University, Saint Petersburg, Russia, denis.yeryomenko@gmail.com

Ерёменко Денис Олегович, студент 3 курса, факультет международных отношений, Санкт-Петербургский государственный университет, Санкт-Петербург, Россия, denis.yeryomenko@gmail.com

Annotation

In this article I am discussing a proposal, entitled University Graduation Encouragement Program (UGEP), which is designed to increase graduation rate at the California State University. It is based on giving students a financial incentive to finish their studies. The goal is supposed to be achieved through returning a student a part of tuition fee in case of successful graduation. I conclude that the proposal leads to considerable increase in CSU graduation rate and has a capacity to overcome its financial drawbacks. Though, because of lack of data to provide accurate estimates, program testing on a pilot basis on several campuses of CSU is proposed to find out the real effect of it. The structure of the article is following. First, I discuss the problem which the proposal is designed to tackle. Second, the substance of the program is covered. Then, I elaborate on possible downsides and obstacles to increasing graduation

rate in a proposed way. Finally, I describe an experiment that should be conducted in order to determine precisely the effect of the program.

Аннотация

В данной статье описывается разработанная нами политика под названием University Graduation Encouragement Program (UGEP), направленная на увеличение доли студентов, оканчивающих Университет штата Калифорния. Она основывается на предоставлении студентам финансового стимула для окончания учебы. Достижение цели предполагается посредством возврата студенту части платы за обучение в случае успешного окончания университета. Мы приходим к выводу, что предлагаемая политика приводит к значительному увеличению доли студентов, оканчивающих Университет штата Калифорния, а также имеет потенциал для преодоления ее финансовых недостатков. Однако ввиду нехватки данных для точных оценок предлагается тестирование программы на экспериментальной основе в нескольких кампусах университета для определения ее реального эффекта. Статья имеет следующую структуру. Сперва рассматривается проблема, которую предлагаемая политика призвана решить. Затем описывается суть предлагаемой программы. Далее даются комментарии по поводу возможных ее недостатков и препятствий для увеличения доли выпускников предложенным способом. В конце описывается эксперимент, необходимый для того, чтобы точно определить эффект предлагаемой политики.

Keywords: education policy, graduation rate, California State University, deposit, financial incentives, tuition fee.

Ключевые слова: образовательная политика, доля выпускников, Университет штата Калифорния, залог, финансовые стимулы, плата за обучение.

Problem Statement

Though up to 150,000 students are enrolled at the California State University annually, many of them fail to get a degree[1]. By 2019 only 27.5% finish their undergraduate studies at CSU within 4 years, while 62.1% manage to do it within 6 years[2]. This means that about a third of those who enter CSU won't be able to enjoy benefits of completed degree in the future[3].

There is a number of downsides associated with students dropping out of universities. Failing to get a degree not only reduces their personal employment opportunities, income level and overall welfare in comparison to graduates, but also leads to significant economic losses faced by government on the state and national levels in terms of lost tax revenue. Therefore, on average college dropouts earn $21,000 less per year than their college graduate counterparts. This means that across the USA $3.8 billion are lost annually by those who haven't completed their degree[4]. The state of California is directly influenced by graduation rate at CSU from economic perspective as well. Since 95% of CSU students are residents of California, they are highly likely to contribute to the state's economy after graduating[5]. This implies not only direct correlation to tax revenue of the state government, but also the level of locally-educated professionals' contribution to knowledge-based industries which dominate in California. So, increasing graduation rate strengthens wellbeing opportunities of individual Californians providing them with better access to welfare benefits, and also enhances administrative capacity of the state government.

[1] Admissions Dashboard 2019, The California State University, viewed 30 May 2020, <https://www2.calstate.edu/data-center/institutional-research-analyses/Pages/applications-and-admissions.aspx>

[2] Graduation Rates for First-Time and Transfer Students Reach All-Time Highs 2019, The California State University, viewed 30 May 2020, <https://www2.calstate.edu/csu-system/news/Pages/Graduation-Rates-for-First-Time-and-Transfer-Students-Reach-All-Time-Highs.aspx>

[3] As both at the university level and nationally 4-year and 6-year graduation rates are the only data to be published, for the sake of convenience, I consider that those who are not included in these figures don't finish university at all. Thus, in my estimates 6-year graduation rate is taken as an absolute graduation rate. Though this approach is simplistic, it allows to make some estimates about effects of the proposal based on available data.

[4] Bustamante J. 2019, College Dropout Rates, educationdata.org, viewed 29 May 2020, <https://educationdata.org/college-dropout-rates/>

[5] Institutional Research and Analysis. Fall Term Student Enrollment, The California State University, viewed 29 May 2020, <http://asd.calstate.edu/dashboard/enrollment-live.html>

Due to Graduation Initiative 2025, since 2015 the California State University has managed to reach 6-year graduation rate of 62.1%[6]. Even though the program has helped increase the value by almost 5% within 5 years, this only marked CSU reaching national average of 62%[7]. By contrast, the 6-year graduation rate at University of California is currently 85.3%, which is over 20 percentage points higher than at CSU[8]. Moreover, there is some evidence that the Initiative has started to exhaust its capacity to raise graduation rates at some of CSU's 23 campuses[9]. At this point, there is a need for an additional program to support continued graduation rate growth.

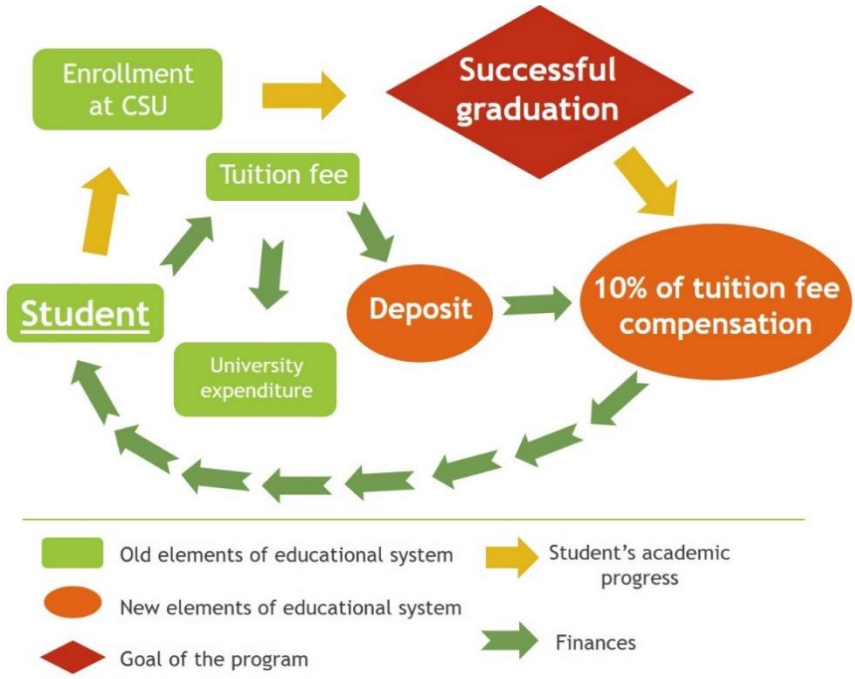
Proposal Description

University Graduation Encouragement Program (UGEP) is a set of measures proposed to the California State University which are aimed at increasing its graduation rate. UGEP is based on giving CSU students extra financial incentives to finish their studies. It implies a sort of deposit system under which 10% of tuition fee is paid back to a student only in case of his or her successful graduation. The sum of money is kept by the university if a student fails to graduate. This step has to keep some of them from abandoning their studies. The program is financed through nominal 10% increase of tuition fee which, however, doesn't influence definitive cost of education for those who graduate successfully as the difference is reimbursed to them after finishing CSU. Therefore, average annual tuition fee should be raised from $5,742 to $6,316[10]. Through this, a successful graduate who finishes his or her studies in 4 years will have the average

[6] Graduation Initiative 2025, The California State University, viewed 20 May 2020, <https://www2.calstate.edu/csu-system/why-the-csu-matters/graduation-initiative-2025>
[7] Undergraduate Retention and Graduation Rates 2020, National Center for Education Statistics, viewed 1 June 2020, <https://nces.ed.gov/programs/coe/indicator_ctr.asp>
[8] Undergraduate Graduation Rates 2019, University of California, viewed 1 June 2020, <https://www.universityofcalifornia.edu/infocenter/ug-outcomes>
[9] Gordon L. 2019, California State University graduation rates show uneven progress, some backsliding, EdSource, viewed 2 June 2020, <https://edsource.org/2019/california-state-university-graduation-rates-show-uneven-progress-some-backsliding/608158#:~:text=Systemwide%20graduation%20rates%20among%20students,Cal%20Poly%20San%20Luis%20Obispo.>
[10] Fact Book 2019, The California State University, viewed 30 May 2020, <https://www2.calstate.edu/csu-system/about-the-csu/facts-about-the-csu/Documents/facts2019.pdf>

of $2,296 reimbursement. If a student graduates in 6 years, the deposit compensation will amount to $3,444. Implementation of UGEP creates such conditions under which dropping out of the university is associated not only with long-term negative consequences (worse employment perspectives and lower average level of income), but also with short-term negative effect on students' finances that is more tangible and encouraging by its nature. This should urge many of them to decide in favor of continuing studies, rather than in favor of dropping out. A schematic description of UGEP is provided in Figure 1.

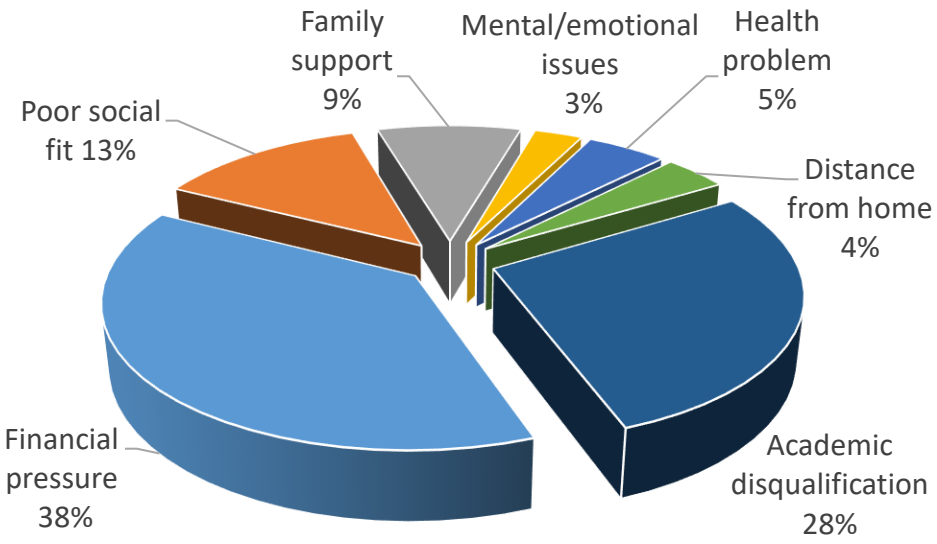
Figure 1. UGEP Design



The core assumption underlying positive effect of UGEP is high level of responsiveness to financial incentives of some categories of students. In order to understand for which groups UGEP will be effective, we need to find out the main reasons for students to fail graduating. Therein, I rely on statistics on the most common

reasons why Americans drop out of college (Figure 2)[11]. According to it, financial pressure caused 38% of dropouts to leave college constituting the largest category. 28% had to drop out because of poor academic performance and consequent disqualification. For 13% poor social fit turned out to be critical in making a decision to leave college. 9% lacked family support and 4% couldn't bear long distance from home. 8% had health problems including mental issues.

Figure 2. Top Reasons for Dropping out of College



I assume that impact of some dropout causes can be overcome if students have enough motivation to stay at the university. Among such causes are poor social fit, family support and distance from home (altogether 26% of total dropouts). Academic disqualification as a result of poor performance (28% of total dropouts) can be tackled as well if there is an extra incentive for a student to study harder and increase his or her academic performance. On the contrary, dropping out of college for students suffering from severe health or mental issues (8% of total dropouts) is irreversible and cannot be influenced by any incentive other than medical treatment and consequent recovery. One

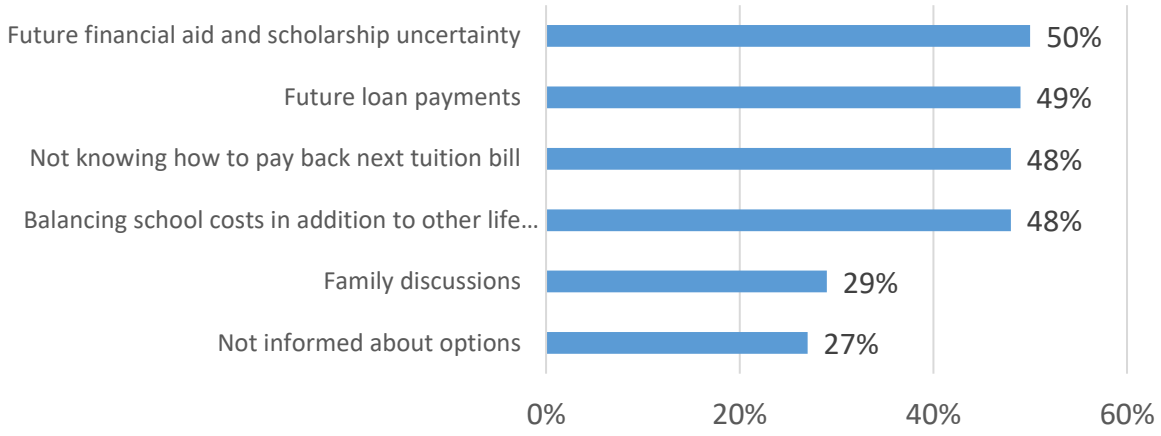
[11] Bustamante J. 2019, College Dropout Rates, educationdata.org, viewed 29 May 2020, <https://educationdata.org/college-dropout-rates/>

controversial category comprises students who dropped out of college because of financial pressure (38% of total dropouts). On the one hand, an opportunity to save 10% of tuition fee under UGEP might make them stay at the university and finish their degree, as this means 10% reduction in their student debt or just a considerable sum of money to spend on living. But on the other hand, financial problems of these students might be so significant that continuing studies becomes simply impossible at some point because there are not enough resources to pay for the next tuition bill. Therefore, I conclude that 54% of students who drop out of college (those facing poor social fit, lack of family support, long distance from home and academic disqualification) constitute a group of people who can potentially give up the idea of dropping out of the university for a reason they deem significant. Considering the controversy which is associated with students dropping out because of financial pressure, I assume that under certain circumstances they can also be considered as a part of the target group for UGEP, thus increasing it to 92% of all dropouts. Depending on whether to include the latter into the model, I project moderate and favorable scenarios according to which groups that can potentially be influenced by UGEP encompass 54% and 92% of total dropouts respectively.

Other data I use in my estimates are a list of the most common reasons for education expense-related stress among students (Figure 3)[12]. These are good indicators to show the ability of certain categories of students to respond to education-related financial stimuli. Thus, we see that steadily about 50% of students are concerned about financial issues, such as financial aid, loans, tuition bills and other costs. In comparison to other stressors (family discussions and lack of information about financial options) direct financial issues are much more significant for students. Therefore, we can conclude that up to a half of all students can potentially react to financial incentives.

[12] Bustamante J. 2019, College Dropout Rates, educationdata.org, viewed 29 May 2020, <https://educationdata.org/college-dropout-rates/>

Figure 3. Most Common Reasons for Education Expense-Related Stress among Students



Bringing together the categories of dropouts who can respond to stimulus provided by UGEP and the level of concern about education finance-related stress, I predict the effect of UGEP on CSU graduation rate. Consequently, according to the moderate scenario, implementation of UGEP will lead to 27% reduction in dropout rate at the university within one educational cycle of 6 years. This accounts for 10.2 percentage points increase of 6-year graduation rate which will reach 72.3% in the case. According to the favorable scenario, dropout rate will decrease by 46%, which accounts for 17.4 percentage points increase of graduation rate. In this cases it will reach 79.5%.

Due to its special nature, University Graduation Encouragement Program has some positive and negative side effects. I start discussing them with a positive one. As technically tuition fee is raised by 10% under UGEP, this will certainly lead to increase in CSU's tuition fee revenue due to postponed character of deposit repayment. Under the assumption that the program is introduced on a regular basis, during the first 4 to 6 years of implementation the university gets extra income that, in fact, needn't paying back as its debt to successful graduates is refinanced annually by freshmen students, and during the first years of the program there is nobody to reimburse the costs to. The surplus amounts to $311,810,400 of extra tuition fee revenue per year during the first 4 to 6 years which can be spent in the way that university's management deems

appropriate[13]. In addition, as UGEP doesn't imply increasing graduation rate to 100%, there will still be some students who fail to graduate and who will not be eligible for reimbursement. According to my calculations, there will be 20.5% (favorable scenario) to 27.7% of them (moderate scenario). This will annually generate $63,921,000 to $86,371,000 of additional income respectively. It will grow by 1.5% every year with overall enrollment growth[14]. These funds can also be spent freely by the university as they are not subject to being paid back to those students who failed graduating.

The negative side effect of UGEP is associated with increased tuition fee, which is bound to reduce demand for education at CSU. According to different studies, price elasticity of demand for education ranges between -0.44 and -1.18[15]. This means that in case of 10% increase of tuition fee and with no supportive measures, CSU enrollment will decline by 4.4% to 11.8%, which is 6,500 to 17,000 students annually in absolute figures. However, this negative effect can be mitigated through expanding university's financial aid fund to assist marginal students whose decision to enter CSU is affected exactly by increased tuition fee associated with implementation of UGEP. Since on average $11,550 of financial aid is spent on one student annually at CSU, in order to compensate for the negative effect $74,750,000 to $195,500,000 are needed. Generally, the surplus income gained through UGEP, as described above, can be reallocated to financial aid fund to cover this deficiency.

So, according to my estimates, introduction of University Graduation Encouragement Program will lead to 10.2 to 17.4 percentage points increase in graduation rate at the California State University. It will generate extra revenue due to postponed deposit repayment, and also some extra net income. The negative side effect of the program can be overcome through expanding financial aid fund of the university

[13] Fact Book 2019, The California State University, viewed 30 May 2020, <https://www2.calstate.edu/csu-system/about-the-csu/facts-about-the-csu/Documents/facts2019.pdf>
[14] Institutional Research and Analysis. Fall Term Student Enrollment 2019, The California State University, viewed 29 May 2020, <http://asd.calstate.edu/dashboard/enrollment-live.html>
[15] Case of the Day: Elasticity of Demand for Higher Education, Reed College, viewed 30 May 2020, <https://www.reed.edu/economics/parker/f10/201/cases/elasticity.html>

which can be financed through reallocation of new net income. The effects of UGEP are summarized in Table 1.

Table 1. Outcomes of UGEP

	Before UGEP	UGEP Moderate Scenario	UGEP Favorable Scenario
Average Annual Tuition Fee	$5,742	$6,316	$6,316
Annual Enrollment	145,000 students	145,000 students	145,000 students
Graduation Rate	62,1%	72.3%	79.5%
Graduation Rate Change	-	+10.2%	+17.4%

Possible Downsides and Obstacles

Most of the threats to successful implementation of University Graduation Encouragement Program are centered around the capability of people to respond to the proposed form of financial incentives. Though I generalize the groups which can be potentially affected by the program, within every of them some people can be defined who are forced to drop out of university and who have no chance to be influenced by UGEP. However, as there are no data on such distinction, I confine myself to listing the possible obstacles to responding to UGEP stimuli within each category of students whom I earlier classified as those who can potentially give up the idea of dropping out of university for a reason they deem considerable.

Sometimes academic disqualification as a result of poor performance is not caused by lack of diligence, patience or motivation, rather than by the fact that students turn out not to be ready for university life, both in terms of insufficient knowledge gained at school and socially. In this case enhanced willingness of a student to finish his or her degree achieved through providing him or her with an extra financial stimulus is not

enough to raise academic performance to the level which is needed to avoid disqualification. Radical cases of poor social fit also imply not just overall uncomfortable environment which can be tolerated if necessary, but total inadaptability to student living conditions, which might result in physical inability to continue higher education.

Family support and long distance from home for some students can also be not just a matter of comfortable environment that is not vital, in fact, but a problem of higher level of expenses away from home or lack of skills to live independently etc. And, as mentioned above, the level of financial pressure can range from that allowing to continue higher education under certain circumstances to that not allowing to pay for tuition bills any longer.

In general, in contrasting reasons for dropping out of university with monetary benefits provided by UGEP, we need to consider how strong the incentives are on both sides for individuals. While we know the quantified outcome of introducing financial incentives into higher education system, it is impossible to estimate theoretically how important the reasons against continuing university education are for individuals. The perceived utility for each person is different, that's why the most accurate conclusions about the effects of UGEP can be made only through experiment.

In addition, if not explained to CSU entrants properly, artificial tuition fee increase associated with UGEP introduction might face a strong opposition of Californians concerned about state's higher education system. That's why the program should be accompanied by a comprehensive information campaign clarifying its goals and functioning principles.

Experiment Description

In order to find out the real effect of University Graduation Encouragement Program, testing it on a pilot basis on several campuses of the California State University

is proposed. All campuses of CSU have different graduation rates, and it is impossible to conduct a randomized experiment within a single campus by discriminatorily charging a part of its students with 10% higher tuition fee while leaving it the same for others. That's why difference-in-differences method is the most appropriate for testing UGEP. It implies picking a pair of campuses where graduation rates have a steady difference over time and show parallel trend. One of these campuses should adopt the program, while the other one should keep the old system during the whole experiment period. After data on the variable of interest are collected, the change of difference in graduation rates within the pair will show the real effect of the proposal.

Based on comparison of 2015, 2018 and 2019 6-year graduation rates at all 23 campuses of CSU, I identified 3 pairs of campuses which show almost perfect parallel trends in graduation rates evolution[16]. They are Pomona and San Jose (Figure 4), Chico and East Bay (Figure 5), Long Beach and Los Angeles (Figure 6). In terms of the trial, a campus with lower graduation rate in each pair (San Jose, East Bay and Los Angeles respectively) is going to switch to UGEP system. As the variable of interest is 6-year graduation rate, the first results of the experiment can be observed and analyzed 6 years after the beginning of the trial. The average change in differences between graduation rates in each pair can be considered as a reliable indicator of UGEP effect which will also be relevant for the entire university if the proposal is adopted across all campuses.

[16] Xie Y. 2019, Graduation rates and goals for California State University's 23 campuses, EdSource, viewed 1 June 2020, <https://edsource.org/2019/graduation-rates-and-goals-for-california-state-universitys-23-campuses/608177>
Xie Y. 2020, Graduation rates for transfer and non-transfer students in CSU, 2019, EdSource, viewed 1 June 2020, <https://edsource.org/2020/graduation-rates-for-transfer-and-non-transfer-students-in-csu-2019/624140>

Figure 4. Graduation Rates by Campuses: Pomona and San Jose

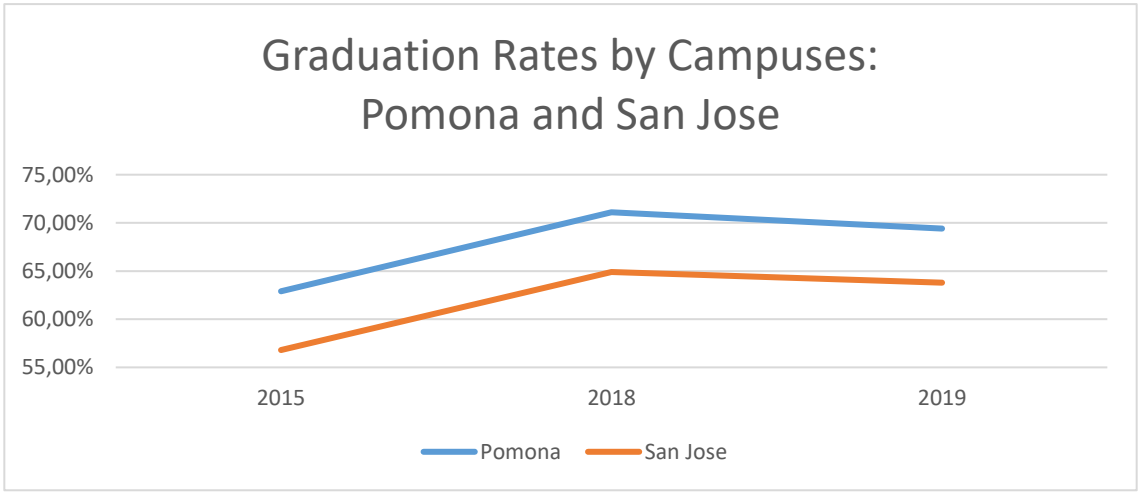


Figure 5. Graduation Rates by Campuses: Chico and East Bay

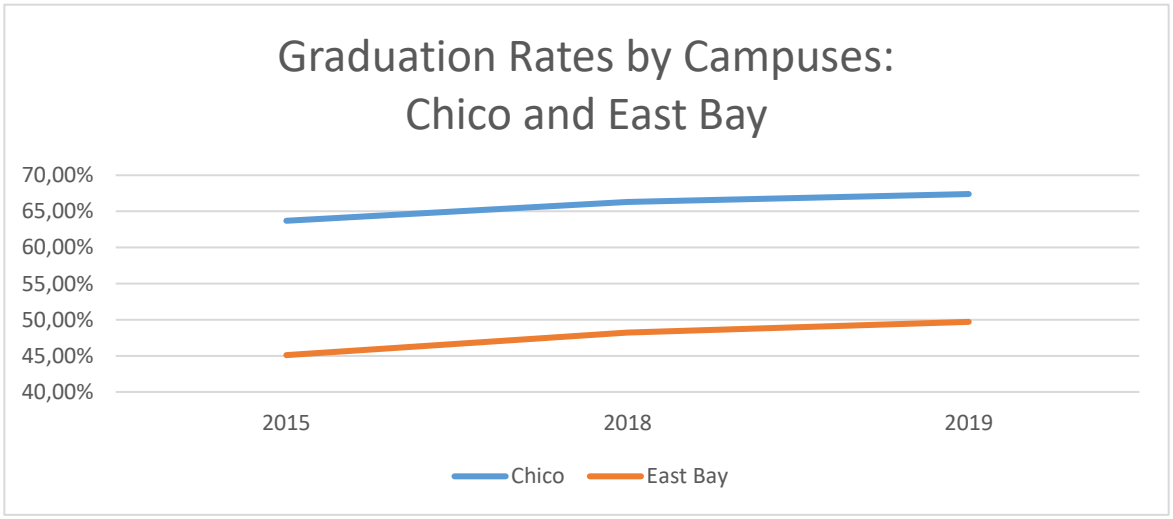
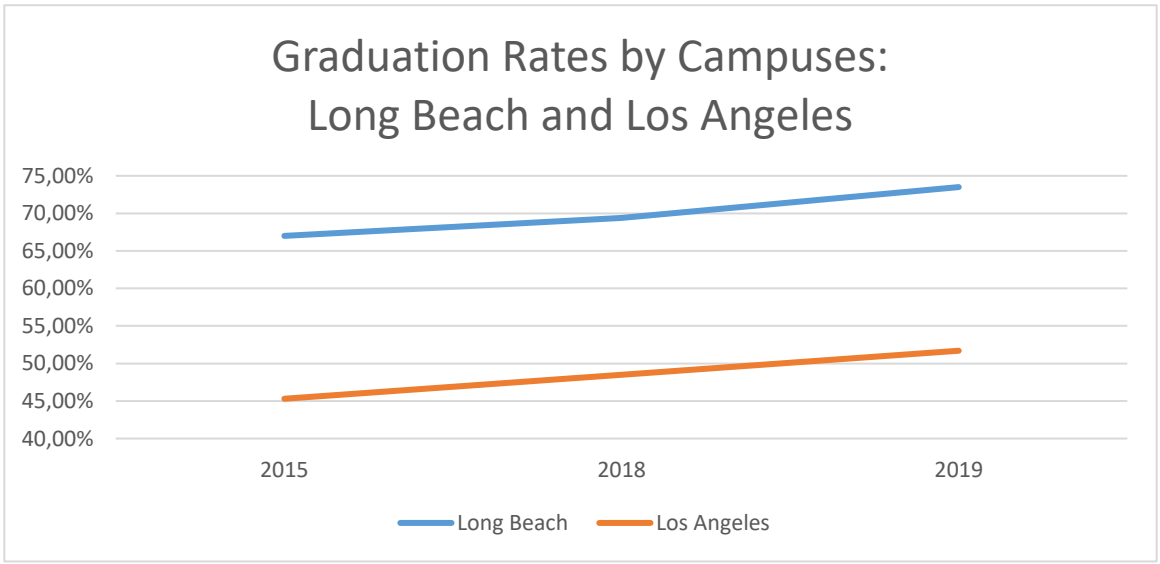


Figure 6. Graduation Rates by Campuses: Long Beach and Los Angeles



In terms of experiment conducted just on several campuses, there are certain important points to be mentioned. First, some number of entrants might switch from an experiment CSU campus to the nearest one where tuition fee has not been increased. In this case extra income obtained through UGEP on the experiment campus might not be enough to compensate for its declining enrollment through additional financial aid. However, this effect will not be present when the program is used across all campuses, that's why real decline in enrollment will be slightly lower than the trial will show. Second, in order to obtain unbiased experiment results, no other program dividing the campuses within one pair, whether aimed at directly influencing graduation rate or not, should be introduced during the whole period of it.

Conclusion

At the moment the California State University has a 6-year graduation rate of about 60%. Though this value is equal to national average, there is still an opportunity of making it higher. University Graduation Encouragement Program has a potential to increase graduation rate at CSU. Among its most important benefits are autonomy and cost-free nature. Its weaknesses are risk of declining enrollment and impossibility to give an accurate estimate about its effect in advance. Thus, a trial should be conducted on a number of chosen campuses. Together with 2025 Graduation Initiative UGEP can lead CSU to graduation rate of over 80%.

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