RUTGERS EDUCATION AND EMPLOYMENT RESEARCH CENTER

INTERSTATE PASSPORT PROJECT
FIRST IN THE WORLD GRANT:

Final Report

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ABSTRACT

In September 2015, the Western Interstate Commission for Higher Education (WICHE) was awarded a First in the World (FITW) grant from the United States Department of Education. Interstate Passport® is the only nationwide network of regionally accredited, nonprofit, public and private two- and four-year institutions dedicated to the block transfer of lower-division general education credits. This study of ten Interstate Passport Network (Network) member institutions across two states finds that students who transferred among Network institutions were enrolled more continuously, earned more credits, and had slightly higher grade point averages (GPAs) than similar students who transferred into Network institutions from non-member institutions. The findings for enrollment and credit accumulation suggest that the Interstate Passport program may facilitate students' post-transfer pathways in their Network member receiving institutions. The modest GPA impact could mean that, compared to similar policies and practices, the Passport Learning Outcomes are better at preparing students for academic success after transfer.

INTRODUCTION

In September 2015, the Western Interstate Commission for Higher Education (WICHE) was awarded a First in the World (FITW) grant from the United States Department of Education. The project, entitled the *Interstate Passport Initiative: Accelerating Transfer to a Credential,* sought to enhance and nationally scale the student transfer project known as Interstate Passport®. Interstate Passport® is the only nationwide network of regionally accredited, nonprofit, public and private two- and four-year institutions dedicated to the block transfer of lower-division general education (LDGE) credits. Interstate Passport LDGE blocks are based on multi-state faculty-developed learning outcomes and proficiency criteria instead of on specific courses and credits. Interstate Passport seeks to eliminate unnecessary repetition of academic work after students transfer from one higher education institution within its network to another. This report presents data from a quasi-experimental study conducted by the Rutgers University Education and Employment Research Center as one part of its third-party evaluation of the project.

BACKGROUND

It is common for students to move between higher education institutions. In fact, data from the National Student Clearinghouse Research Center shows that nearly 38 percent of all first-time college students will transfer at least once before finishing a bachelor's degree and about 27 percent of all college students transfer across state lines. (NSC, 2018). This movement of students has important implications for student success. Jenkins and Fink found that low-income students who started in a community college were less likely than higher income students to earn a bachelor's degree post-transfer (Jenkins and Fink, 2016).

One of the reasons so many transfer students fail to complete is credit loss related to their transfer. A study by the United States Government Accountability Office (GAO) shows that students lose about 40 percent of their credits on average when they transfer (U.S. GAO, 2017). This means that students must retake courses, which results in delayed graduation and delayed entrance into the workforce. This reality not only has grim consequences in terms of time to degree and work but also means that students spend more money on school, make less money over a lifetime and are less likely to complete a degree (Monaghan & Atwell, 2015). Monaghan and Attewell (2015) found that credit loss at the point of transfer was a strong negative predictor of postsecondary completion – "the higher the loss of credit, the lower the chances of completing a bachelor's degree" (Monaghan & Attewell, 2015).

Transfer is a challenging process, and one that students in the United States typically navigate with very little information or advice. The 2017 GAO study referenced above also found that students have trouble accessing information about transferring course credits. The study indicated that students can face difficulties transferring credits between schools that do not have systems set up to help facilitate transfer, such as common course numbering or articulation agreements (U.S. GAO, 2017). Even when agreements exist between in-state institutions, they may be difficult for students to navigate, or the information may not be readily available or up to date (U.S. GAO, 2017). Additionally, many institutions do not have articulation agreements that extend out of state. Thus, inter-state transfer can be particularly difficult for students in terms of credit loss. Advising and information may also be inadequate to help students prepare for and navigate the out-of-state transfer process (U.S. GAO, 2017).

A higher proportion of students of color and first-generation students are low-income and, therefore, are more likely to begin higher education at two-year colleges. These students may then transfer to pursue a baccalaureate degree (Bowen, Chingos, & McPherson, 2009; Jenkins and Fink, 2016). Thus, they are likely disproportionately affected by credit loss regardless of whether they embark on an in- or out-of-state transfer. These are the types of challenges involved in credit transfer that the Interstate Passport was created to help solve (Walker, et. al, 2016).

DESCRIPTION OF THE INTERVENTION

Interstate Passport is a program that enables block transfer of lower-division general education (LDGE) credits based on a set of learning outcomes rather than on individual courses and credits.

Upon completing all LDGE requirements in any school in the Interstate Passport Network (the Network), a student will have completed all LDGE requirements at any *other* Network institution even if the course and credit requirements differ. This means that there are no circumstances under which any student with a Passport will have to retake any LDGE requirements as long as they remain within the Network. In essence, the Interstate Passport could be viewed as a "mega-articulation agreement" among institutions in the Network (Sherman and Shea, 2020).

The Interstate Passport program's framework consists of faculty-developed Passport Learning Outcomes (PLOs) and Transfer-Level Proficiency Criteria (PC) in nine knowledge of concepts and skill areas: *foundational skills* in oral communication, written communication, and quantitative literacy; *knowledge of concepts* in natural sciences, human cultures, creative expression, and human society and the individual; and *crosscutting skills* in critical thinking and teamwork/value systems (Sherman & Shea, 2020). When Network member institutions join, they agree that their learning outcomes are congruent with and cover the same range of learning as the PLOs. The Interstate Passport framework was developed in two phases. During Phase I (2011–2014), PLOs and PC were developed in the three foundational skill areas only. During Phase II (2014–2016), the framework was completed with the development of PLOs and PC in the remaining six knowledge and skill areas. Each participating institution constructs its own Passport Block – i.e., a list of courses and/or learning experiences via which its students can achieve the PLOs. Students who successfully complete their institution's Passport Block will be awarded a Passport. Students must receive a C or better in every course that is applied to the Passport. In some cases, this may be a higher grade than is required to pass the course.

In order to facilitate its use across institutions and states, Interstate Passport has a data system developed by the National Student Clearinghouse (NSC) as a part of the FITW grant. Data is provided to NSC by both sending and receiving institutions in the Network to track the post-transfer academic progress of Passport earners. Another NSC data system, also developed during the grant, allows institutions to verify that an incoming transfer student has earned a Passport. Interstate Passport is governed by the Passport Review Board. The board is comprised of a representative from each state with one or more member institutions and at-large members with special higher education expertise.

Passports were first awarded in the 2016–2017 school year.[1] In many ways, the Network is in its early days, but it continues to grow. At the time of publication, the Network included 59 institutions in 17 states (WICHE, 2018), although some of those institutions had not yet begun awarding Passports.

FOCUS STATES

This study focuses on two early adopter states: Utah and Hawai'i.[2] These states were chosen for the study because they began awarding Passports early enough during the grant period – by the Fall 2017 semester – to track students after transfer. They were also both part of statewide institutional systems and included at least one two-year institution and one four-year institution. The sample in Utah includes eight schools in the Utah System of Higher Education:

[1] A more limited version of the Passport was awarded in the 2014–2015 and 2015–2016 academic years as part of a pilot study.

[2] South Dakota also provided data to the evaluation team. However, its tracking file did not include two-year outcomes, so they were excluded from these analyses.

Dixie State University, Salt Lake Community College, Snow College, Southern Utah University, University of Utah, Utah State University, Utah Valley University, and Weber State University. The sample also includes two institutions in Hawai‘i: Leeward Community College and the University of Hawai‘i West O‘ahu. Since the start of grant, the other eight institutions in the University of Hawai‘i system joined the Network, but they did not begin awarding Passports in time to be a part of the study.

DATA AND METHODS

Student Data

This study was conducted using student data provided by the state higher education systems in Hawai‘i and Utah. We requested data on new transfer students at Interstate Passport Network member institutions in the Fall 2018 term. We were provided student characteristics in the transfer term, and students' course histories for up to two years following transfer.

Main Independent Variable

For the purposes of this evaluation, Interstate Passport is considered an institution-level intervention. We do not compare the success of students who earn a Passport to that of students who do not. Rather, when examining transfers into Network institutions, we evaluate the success of students coming from other Network member institutions to that of students coming from non-Network institutions. Whether a student was placed in the treatment or control group therefore depended on the student's sending institution. If a student's sending institution was also a Network member, that student became part of the treatment group. If the student's sending institution was not a Network member, that student became part of the control group.[3]

Covariates

At the point of transfer, we have observed data on students' gender, race/ethnicity, age (in years), Pell recipient status, and ACT scores. The race/ethnicity measure uses the IPEDS classification codes. Pell status is a binary indicator; ACT score is a continuous measure. Pell status and ACT scores are measures of student socioeconomic status (SES) and prior academic achievement, respectively. The What Works Clearinghouse defines SES and prior academic achievement as key measures of baseline equivalence for studies of postsecondary support interventions (What Works Clearinghouse, 2019). As such, they play a particularly important role in the analysis that follows.

Dependent Variables

We measure the effect of the Interstate Passport intervention on student success in two domains: 1) progressing in college and 2) academic achievement. In the first domain we

[3] This choice was made to align the study with the What Works Clearinghouse group design standards.

measure the number of terms students enrolled in the two years after transfer, and the number of credits they earned. We examined two years or four terms of data, thus students could potentially enroll in a maximum of four terms following transfer. In the state data analyzed here, courses generally counted for three credits. With regard to the second domain, we examine students' two-year post-transfer grade point average as a measure of academic achievement. GPA is measured on a four-point scale.

Analytic Strategy

We begin by describing the full sample of students in the two state systems, looking at unadjusted differences in traits and outcomes between the treatment and control groups. We then examine baseline equivalence in terms of SES and prior academic achievement in the two domain-specific samples. Given substantial missing data on one of these measures (ACT scores), we describe the imputation strategy used in the analysis. After presenting the results of imputation, we use regression to estimate adjusted effect sizes. Then, we use propensity score matching with the imputed data to estimate effect sizes accounting for selection bias.

FINDINGS

Table 1: Descriptive Statistics and Unadjusted Outcomes of Within-Network and non-Network Transfer Students enrolled in Interstate Passport Network Member Institutions in Utah and Hawai'i, Fall 2018, Full Sample

	Non-Network (Control) N=3,275	Within-Network (Treatment) N=4,763	Total N=8,038
Gender			
Male	45.6%	45.4%	45.4%
Female	54.4%	54.7%	54.6%
Ethnicity***			
Non-resident Alien	0.1%	0.3%	0.3%
Hispanic/Latino	10.3%	10.4%	10.4%
American Indian/Alaskan Native	1.0%	0.6%	0.7%
Asian	8.3%	3.8%	5.7%
Black/African American	3.4%	1.2%	2.1%
Native Hawai'ian/Pacific Islander	7.0%	2.3%	4.2%
White	61.2%	75.5%	69.7%
Multiple Races	6.9%	4.3%	5.4%
Unknown	1.8%	1.6%	1.7%
Age at time of transfer***			
Mean	24.9	23.3	23.9
SD	7.2	5.8	6.5
Pell Recipient***			
Mean	0.36	0.41	0.38
SD	0.48	0.49	0.49

ACT score***			
Mean	22.8	21.7	22.0
SD	4.8	4.0	4.3
Missing value***	65.5%	43.9%	52.7%
State of Receiving Institution***			
Utah	78.5%	95.3%	88.5%
Hawai‘i	21.5%	4.7%	11.6%
Terms Enrolled After Two Years*** (Progressing in College)			
Mean	3.0	3.1	3.1
SD	1.1	1.1	1.1
Missing Value	0.1	0.0	0.05
Credits Earned After Two Years*** (Progressing in College)			
Mean	31.1	33.1	32.3
SD	20.3	19.5	19.8
Missing Value	0.1	0.0	0.05
Cumulative GPA After Two Years* (Academic Achievement)			
Mean	2.89	2.94	2.92
SD	1.1	1.1	1.1
Missing Value	2.2	1.7	1.9

*p<.05 ***p<.001

Table 1 describes the characteristics of students who transferred into the selected Network institutions in either Utah or Hawai‘i in Fall 2018. Students are grouped according to whether their sending institution was also a Network member (treatment group) or a non-Network member (control group). The data indicate significant differences between the groups on several student traits. Students in the treatment group are more likely to be white (76% versus 61%), are slightly younger (23 years versus 25 years old), and are more likely to have transferred to a college in Utah (95% versus 79%).

In terms of the key baseline equivalence measures indicated by the What Works Clearinghouse, students in the treatment group were more likely to receive Pell grants in the transfer term (41% versus 37%) and to have slightly lower ACT scores (21.7 versus 22.8). We return to these two student traits in Tables 2a and 2b.

Table 1 also provides unadjusted differences for three outcomes measured one year after transfer. Students in both groups enrolled in an average of three terms. Students in the treatment group earned about two more credits than those in the control group and had slightly higher grade point averages (2.94 versus 2.89). Because the two groups differ substantially on several characteristics, we use statistical adjustments to obtain less biased estimates of the treatment effects. We also note that the GPA outcome has a somewhat higher amount of missing data, but that attrition from this outcome is still within acceptable limits to produce unbiased estimates.

Baseline Equivalence

Table 2a. Measures of Pre-Treatment Baseline Equivalence for Within-Network and non-Network Transfer Students enrolled in Interstate Passport Network Member Institutions in Utah and Hawai'i, Fall 2018, Progressing in College Sub-Sample

	Non-Network (Control)	Within-Network (Treatment)	Total
Pell***			
N	3,271	4,763	8,034
Mean	0.37	0.41	0.39
SD	0.48	0.49	0.49
ACT score***			
N	1,129	2,670	3,799
Mean	22.8	21.7	22.1
SD	4.8	4.0	4.3
Missing Value	65.5%	43.9%	52.7%

***p<.001

Table 2b. Measures of Pre-Treatment Baseline Equivalence for Within-Network and non-Network Transfer Students enrolled in Interstate Passport Network Member Institutions in Utah and Hawai'i, Fall 2018, Academic Achievement Sub-Sample

	Non-Network (Control)	Within-Network (Treatment)	Total
Pell***			
N	3,204	4,684	7,888
Mean	0.37	0.41	0.39
SD	0.48	0.49	0.49
ACT score***			
N	1,103	2,641	3,744
Mean	22.9	21.7	22.1
SD	4.8	4.0	4.3
Missing Value	65.6%	43.6%	52.5%

***p<.001

Tables 2a and 2b compare the treatment and control groups among the subsamples that have complete data in two outcomes domains – "progressing in college" and "academic achievement." In both domains, the groups differ significantly on key measures of baseline equivalence, but are still within acceptable limits, with mean differences between 0.05 and 0.25 of the pooled standard deviation on each measure (What Works Clearinghouse, 2020). Thus, our effect size estimates need to control for these two measures. Further, given that missing data is high for student ACT scores, we opt to use multiple imputation to allow estimation with the full samples in each domain.

Multiple Imputation

We used the 'mi' program in Stata 16.1 to conduct regression-based imputation for student ACT scores. Because ACT scores have a defined range of 1 to 36, we use a truncated regression

model – which allows the researcher to fix the upper and lower limits of the imputed values. Given the rate of missingness, we opted to create 20 imputations of the ACT score variable. As per best practices and WWC standards, we include the outcomes in the imputation model. Since GPA has more missing data than either term enrollment or credits earned, imputation was conducted separately for each domain-specific sample. Each imputation model includes all the student traits listed in Table 1.

Descriptive statistics indicate that none of the imputations differ substantially from the observed (non-imputed) values. While the lowest observed ACT score in the data was 7, we specified the true range of ACT scores (1 to 36) in the truncated regression. This resulted in lower mean scores in all imputations.

Table 3. Observed and Imputed Values of Student ACT scores for both Within-Network and non-Network Transfer Students enrolled in Interstate Passport Network Member Institutions in Utah and Hawai'i, Fall 2018, Academic Achievement Sub-sample

	Mean	Standard Error	N
Progressing in College			
Observed ACT Scores	22.06	.070	3,799
Imputed ACT Scores	21.70	.009	8,034
Academic Achievement			
Observed ACT Scores	22.07	.070	3,744
Imputed ACT Scores	21.71	.077	7,888

Regression Estimates of the Treatment Effect

With the imputed data, we first make simple adjusted estimates of the treatment effects using Stata's 'mi regress' program. While we used a larger set of student traits to impute student ACT scores, we only use Pell status, ACT scores, and the state of the receiving institution as covariates in the estimation of effect sizes.

Table 4. Imputed Linear Regression Predicting Two-Year Post-Transfer Outcomes

	Terms Enrolled	Credits Earned	Cumulative GPA
Treatment Group	.182***	2.652***	.081**
	(.026)	(.476)	(.026)
Pell (ref: No Pell)	.101***	3.625***	.004
	(.025)	(.451)	(.025)
ACT Score	.022***	0.812***	.040***
	(.004)	(.073)	(.004)
State (ref: Utah)			
Hawai‘i	.041	.113	-.028
	(.041)	(.723)	(.040)
Constant	2.442	11.653	2.001
	(.096)	(1.689)	(.084)
N	8,034	8,034	7,888

*p<.05 **p<.01 ***p<.001

Table 4 shows the results of linear regression with imputed ACT score data. These models indicate positive impacts for students in the treatment group when accounting for baseline equivalence measures and the state of the receiving institution. On average, students who transferred from one Network institution to another enrolled in about 0.2 additional terms over two years. In the same outcome domain, treatment students earned 2.7 additional credits on average. Both effect sizes are statistically significant (p<.05). Students transferring between Network institutions also appear to have slightly higher grade point averages, a difference of about .08 points. As a final step in the analysis, we use propensity score matching in combination with the imputed data as a stronger check against potential selection bias.

Propensity Score Matching

Using multiple imputation together with selection methods such as propensity score matching is a challenge. The strength of multiple imputation is that estimation procedures utilize multiple plausible values for unobserved data rather than a single fixed value (Manly & Wells 2015). But selection methods such as propensity score matching require fixed values to estimate a probability of appearing in the treatment group (Granger et al., 2019). Thus, two approaches to combining multiple imputation with propensity score matching have been proposed. The first is to use each imputed data set to estimate an individual propensity score, then use the average of these propensity scores in a single estimation of effect sizes. The second approach is the reverse; propensity score-based effect sizes are estimated in each imputation, and the average effect is reported. Based on recent work by Granger et al. (2019), which suggests that the latter produces less biased and more conservative effect size estimates, we opt for that approach. As with the regression estimates, we use only Pell grant status, ACT score, and state of receiving institution in the propensity score-matched models. To estimate these effect sizes, we use the ‘teffects psmatch’ program in Stata 16.1.

Table 5. Treatment Effect Estimates Averaged from 20 Propensity-Score Matched Imputations

	Terms enrolled	Credits earned	GPA
Treatment Effect	.1566***	1.8345***	.0947**
Robust Standard Error	(.0300)	(.5320)	(.0291)
p-value	0.0000	0.0012	.0027
N	8,034	8,034	7,888

*p<.05

Table 5 presents the average effect size estimates for each outcome. Using this approach, we observe statistically significant effects for both terms enrolled (0.16 terms) and credits earned (1.8 credits) after two years. There is also a modest (.095 grade point) effect on students' GPA, which is also statistically significant at the 95 percent level of confidence.

DISCUSSION

General Findings

Interstate Passport is an important innovation in higher education. It seeks to align lower-division general education (LDGE) across institutions and states to enable student transfer with minimal or no credit loss. Using quasi-experimental methods, we found that students who transferred among Interstate Passport Network institutions were enrolled more continuously, earned more credits, and had slightly higher GPAs than similar students who transferred into a Network institution from a non-Network institution.[4] The findings for enrollment and credit accumulation suggest that the Interstate Passport may facilitate students' post-transfer pathways in their receiving institutions. The modest GPA impact could mean that Passport earners are better prepared for academic success after transfer.[5] However, given the parameters of the study design, and what we know about the implementation of the Interstate Passport and the contexts in which it exists, we only cautiously interpret these findings.

Limitations

Implementation of the Interstate Passport program both nationally and at individual institutions is a resource- and time-intensive process. Developing, scaling, and sustaining the Network requires ongoing effort. Additionally, when institutions or state systems join the Network, they must create and implement their blocks, and determine how the Interstate Passport program will operate within existing policies and practices, before beginning to award the Passport. This work takes time and involves a range of stakeholders including faculty, staff, college administration, and state higher education systems. Consequently, the process of

[4] The evaluation plan also stated that we would compare students on a direct measure of credit loss. Due to data limitations at the state higher education system level, this was not possible to collect.

[5] In some ways, this finding is not surprising, as Passport students are required to achieve at least a C in courses applied to the Passport.

implementation in states and the start of awarding the Passport took longer than originally planned, and at the conclusion of the grant period, few institutions had been awarding the Passport long enough to produce two-year post-transfer student outcomes. Additionally, given findings from our qualitative data collection over the course of the project, we chose not to analyze data from the first year of Passport awards to give institutions time to implement policies and practices to make students, faculty, and staff aware of the program. As a result, and as noted above, our analysis focuses on ten institutions across two states. Additional time for data collection and analysis would help to better clarify the impact of Interstate Passport across states.

The institutional nature of Interstate Passport also complicates analysis. When institutions become Network members, they offer the Interstate Passport program to all students. This makes a student-level random assignment study impossible. The GPA and course-taking requirements of the program mean that not every student, even those who intend to transfer, will earn a Passport. These criteria make identifying students comparable to Passport earners a fraught task. Thus, the evaluation uses a very broad indicator – whether a student transferred from one Network institution to another – to assess the treatment effect of the intervention. Even though we do use techniques to minimize selection bias, this broad indicator makes us cautious in attributing the observed effects to the program itself.

Finally, Interstate Passport does not exist in a vacuum. Many states, including those analyzed here, have articulation agreements among public colleges and universities. Given that much of the student transfer population is transferring within states, there is a degree of overlap between the function of the Interstate Passport and the function of articulation agreements. While we know from our qualitative work that at some institutions Interstate Passport was used for transfer rather than the existing articulation agreements, we do not know if that is the case everywhere. Additionally, only about one quarter (1,096) of those in the treatment group had actually earned a Passport. This group is too small to support precise effect size estimates. This study and its findings are in many ways about both Interstate Passport as an intervention and existent state policies and articulation agreements. As a result, this study provides us with information about various policies and practices being used to facilitate transfer, including Interstate Passport.

CONCLUSION

The findings above contribute to our knowledge about the impact of policies and practices to facilitate student transfer. The evidence from this study suggests that the Interstate Passport program may be facilitating transfer student success measured by credit earning, continuous enrollment, and academic achievement. However, to truly understand the impact of Interstate Passport for transfer students, more work needs to be done. Interstate Passport is still in the early stages of implementation. More institutions join the Network every year and begin to award Passports.

Based on our experience with this evaluation, we propose that an ideal evaluation of the Interstate Passport Network could take either or both of two forms. First, an evaluation could examine the students who theoretically would be most directly impacted by the program – students transferring between states. This would require that more states and institutions join the Network so that enough students move from one Network institution to another, but *between states*. Second, if Interstate Passport is conceptualized as a milestone toward student degree earning and as an important set of competencies, an ideal program evaluation could consider student progress through credential completion and beyond, *regardless of transfer status*. We hope that in the future, with more time for students to have progressed post-transfer and with an increased number of institutions participating in the Network, a robust study with a refined focus on Interstate Passport will be possible.

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