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# Community College Transfer and Articulation Policies

## Looking Beneath the Surface

*Betheny Gross*

*Dan Goldhaber*

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**information contact**

**Betheny Gross**

206-685-2214

*betheny@u.washington.edu*

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## **Community College Transfer and Articulation Policies: Looking Beneath the Surface**

**Abstract** – As the demand for higher education has grown, so has the role of community colleges in providing post-secondary education to students. The development of curriculum articulation and school transfer policies is one policy movement that demonstrates the extent to which state policymakers view community colleges as creating greater and broader access for students. Recent research suggests that the *presence* of a state articulation and transfer policy does not increase the transfer rate of community college students to four-year institutions. However, all such policies are not the same - so we must account for more than just the presence of these policies when assessing their impact, and account for the mechanisms through which they encourage or facilitate student transfers.

We attempt to address this gap in this paper by exploring the relative importance of specific policy components (such as common course numbering or common general education requirements) on post-secondary outcomes, and how such policies differently impact students with different aspirations or economic and ethnic backgrounds. In addition, we explore how the potential impacts of these policies compare with some institution-level policies such as support for tenured faculty, expenditures for student services, or expenditures for instruction. In the end, we find only small effects – concentrated amongst Hispanic students – that state transfer and articulation policies are related to the transfer of students between sectors. In terms of general effects across students, institutional factors regarding faculty tenure at community colleges seem to be more correlated to the propensity of students to transfer between community colleges and four-year institutions.

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## ***Introduction***

Finding success in the labor market has increasingly required employees to have college degrees, and the demand for higher education has grown accordingly: the number of students expecting to attend post-secondary college is higher now than at any other point in history (Kirst and Venezia 2004). Community colleges have assumed a progressively more prominent role in meeting the demands of the higher educational system. According to the National Center on Education Statistics (NCES), as of 2005, community colleges made up almost two-fifths of degree-granting institutions in the United States, an increase of nearly 10 percent from 1950 (U.S. Department of Education 2007). Similarly, the share of undergraduates attending community colleges increased from 27 percent in 1970 to 37 percent in 2005. Community college enrollment has nearly doubled over the past three decades compared to all other postsecondary institutions, which grew by 76 percent during the same time.

Community colleges are a particularly important point of entry to higher education for minority and low-income students. For instance, NCES reports that in 2005, minority students represented 36 percent of community college students compared to 27 percent of students in four-year institutions. In 1999-00 students from families with incomes of \$35,000 or less represented 30 percent of all community college students but only 23 percent of students in four-year public institutions and only 19 percent of students in four-year private institutions.

In the 1980s states began to develop policies that would better integrate state community colleges with the traditional four-year college and university system schools. These policies took the form of cross-institutional agreements to align curriculum and degree requirements and monitor the flow of students across institutions. These policies represent a potentially important lever by which states may influence the behavior of college students, specifically their propensity

to transfer from a two-year college to a four-year college, and improve the coordination of institutions (Ignash and Townsend 2001; Knoell 1990).

While higher education researchers have examined the structure of these policies (commonly known as transfer and articulation policies) and stakeholder participation in them, only a handful of studies have examined the impact of these policies on students' higher educational experiences and outcomes, and these have found little evidence on the effect of the policies on students' transfer rates and ability to preserve credits (Anderson, Sun, and Alfonso 2006; Roksa 2007; Roksa and Keith 2008). These studies make valuable contributions to our understanding of both the theory and effects of these policies but still classify all states as having agreements or not having agreements, though surveys of these policies nationwide show considerable variation in the policy components.

In this paper we report findings from our research on whether different types of transfer and articulation policies have different effects. We focus special attention on whether the policies have differential impacts on lower income and minority students, given the importance of community colleges to these student subgroups. Specifically, we ask: Does it matter how “strong” the policy is? Do some policy approaches seem to work better than others? Do minority, low-income, and first-generation college students potentially benefit more from these policies than other students? Finally, how do the potential impacts of these policies compare with some institution-level policies such as support for tenured faculty, expenditures for student services, or expenditures for instruction?

In general, we find only small effects – concentrated amongst Hispanic students – that state transfer and articulation policies are related to the transfer of students between sectors. In terms of general effects across students, institutional factors regarding faculty tenure at

community colleges seem to be more correlated to the propensity of students to transfer between community colleges and four-year institutions.

### ***Improving the pipeline between two- and four-year institutions***

In the mid-1980s, a number of states enacted agreements that: 1) articulated curriculum across their publicly funded, two-year community colleges and four-year colleges and universities, and 2) facilitated the transfer of students across these institutions. Such coordination between two- and four-year colleges clarifies the pathways for students wishing to use community college attendance as a bridge to eventually transfer to a four-year college (Anderson, Sun and Alfonso 2006). Policies governing the transfer of students across institutions and the articulation of higher education curricula, particularly in core subject areas, can include several different components such as incentives to transfer (for example, financial assistance or guaranteed acceptance); common general education requirements; common general education core classes; common requirements for program majors; or common course numbering for courses of similar content.

The Education Commission of the States conducted the most-recent survey of transfer and articulation policies in 2001, and found that 30 states had some type of formal transfer and articulation policy written into legislation. The most common policy elements among these states are data collection systems to monitor transfer (23 states); statewide articulation guides providing concrete descriptions of the transfer process (17 states); and a common set of core courses (16 states). Some less common elements are legislated agreements to provide extra incentives to encourage transfer – such as financial aid, guaranteed transfer of credit, or priority admission (13 states); and a common core numbering system (which has been implemented by only 4 states).

These elements are far less likely to be included in states with cooperative agreements that are formulated on a department-to-department or institution-to-institution basis (ECS 2001).

In theory, these policies were intended to impact post-secondary attendance by improving the quality of information to students, two-year institutions, and four-year institutions and minimizing uncertainty around transferring for both students and receiving institutions (see **Figure 1**). Policies that define degree and/or program requirements better inform students – who some argue are poorly advised in high school (Rosenbaum, Deil-Amen, and Person 2006) – and their two-year institutions about the classes they need to take or prepare to take when in their two-year institution.

For example, common course numbering could potentially eliminate students' confusion over which community college courses are not credit earning, which are credit earning but not transferable, and which are credit earning and transferable – a problem that has at times dampened students' enthusiasm for continuing and cost additional time and money (Rosenbaum et al. 2006). In addition, common course numbering could improve four-year colleges' confidence in the quality of curriculum taken by students requesting transfer from two-year colleges and facilitate the transfer of credits across institutions. As a result, institutions would expect students to be better prepared to transfer to a four-year college and provide greater encouragement to do so, and states would expect to see more students transferring from two-year to four-year institutions. Moreover, the fluid transfer of students with minimal credit loss and better preparation would be expected to improve the rate at which these transfer students complete a bachelor's degree.

While it is more common to discuss the impact of these policies on the transfer from two- to four-year colleges and the subsequent goals, these policies also have the potential to improve the flow from four- to two-year colleges, known as reverse transferring (Yang 2006; Townsend 2001). Indeed, a small but growing number of students are pursuing reverse transfers. While this is an important phenomenon that merits future research, in this paper we focus on the more traditional transfer route from two- to four-year institutions. Before going further, it is worth noting explicitly that our findings do not offer strong causal inferences. The data we examine are cross-sectional, and although we attempt to account for various individual, institutional, labor market, and state influences on transfer behavior, the possibility exists of unaccounted-for factors that relate to the propensity of transfer and the policies on which we are focusing.

### ***Data on students and policies***

We use three sources of data to examine the relationship between states' established curriculum articulation and transfer agreements and students' use of transfer pathways, as well as between institution-level factors (such as student expenditures and staffing patterns) and the use of these pathways: the *National Educational Longitudinal Study* 1988 to 2000 data (NELS88/2000) and the *NELS 2000 Follow-up*; the 1999 *Survey of State Transfer and Articulation Policies* conducted by Ignash and Townsend; and the 1992 *Integrated Postsecondary Education Data System* (IPEDS).

First, student data on post-secondary career paths is drawn from the NELS88/2000. The NELS survey includes detailed information on high school and post-secondary educational experiences. Beginning with a nationally representative cohort of students in the 8<sup>th</sup> grade in 1988, the NELS follows these students with subsequent surveys in 1990, 1992, 1994, and 2000

and logs their educational aspirations, academic experiences, and labor market experiences during these years. The *NELS 2000 Follow-up* (with 12,144 respondents) includes information on students' initial college attendance, course taking, and degree attainment, with just over 40 and 50 percent of the entire sample reporting that they attended a two- or four-year college, respectively. These data follow students through their high school and post-secondary experiences, and allow us to examine how transfer and articulation policies potentially impact their decision to attend a community college or four-year institution. Our analytic sample includes all students whose first post-secondary enrollment was in a two-year college and in a state for which we had state policy information (a detailed explanation of the state sample is given below), which totals more than 3,000 students.<sup>1</sup>

The typical student in the NELS cohort graduated high school in 1992, making it important for us to capture the transfer and articulation policies present in states in 1992. Unfortunately, there was no systematic survey of these policies at that time. However, in 1999 Ignash and Townsend conducted their *Survey of State Transfer and Articulation Policies* (for more information, see Ignash and Townsend 2001) that asked about *legislation* regarding transfer and articulation; institutional *cooperative agreements* between two- and four-year institutions; *unified reporting* of transfer data; *student incentives* for transfer from a two- to four-year institution; and *statewide curriculum articulation* with common course descriptions, core curriculum, and course numbering systems. Forty-three states responded to the survey, which asked questions about the various aspects of states policies and, importantly, asked respondents to pinpoint when their state's agreement was implemented – we used this information for our analyses.

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<sup>1</sup> It is important to recognize that the relatively short follow-up period after students leave high school (1992-2000) means that our sample includes only relatively young or “traditionally aged” students in our analysis. Two-year colleges also serve many older students who are returning to education.

We inferred the status of each state's policy in 1992 from the 1999 policy status and information regarding the origin of the policy. **Table 1** reports the 1999 policy status as specified by Ignash and Townsend (2001) as well as the inferred 1992 status for all states with available data. States that are categorized as having a policy in 1999 but not in 1992 are those that reported having a policy in the 1999 survey but also reported that it went into place after 1999. We borrow four policy classifications from Ignash and Townsend (2001): Presence of policy agreement; Overall strength of policy agreement; Individual transfer components; and Transfer Component Strength.

First, we consider a binary indicator of states with formal transfer and articulation agreements (such as institutional agreements or state legislation). Second, we consider an indicator of the overall policy agreement strength based on: (1) the types of transfer, scope of participating institutions, and percentage of undergraduates covered by the agreement level of authority for policy (e.g., two- to four-year transfer for public institutions only); (2) the level of faculty involvement in developing agreements (e.g., "very involved" to "not at all"); (3) the presence of transfer components specifying curriculum alignment (e.g., common general education requirements or common requirements for majors); and (4) the state's effort to monitor/evaluate transfers (e.g., data collection or anecdotal evidence). Ignash and Townsend rank states on a scale of one to five, however for our analysis we condense these classifications to three.<sup>2</sup> Third, in addition to these broad policy indicators, we consider (separately) indicators of five specific transfer components, including automatic transfers of associate degree, common general education requirements, common core courses, common requirements for program majors, and common course numbering. Finally, respecting that policy monitoring systems and

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<sup>2</sup> See Ignash and Townsend (2001) for a detailed explanation of the strength classifications.

faculty participation may not impact student transfer behavior, we also consider an aggregate indicator of the overall strength of just the transfer components.

For our final analysis, in which we explore the relationship between institutional factors and student transfers, we pull in school-level data from the 1992 IPEDS. We match three variables (expenditures for instruction, expenditures for student support, and percent of tenured faculty) to students in the NELS sample attending these institutions.

### ***Modeling Student Transfers***

We examine the impact of the transfer and articulation policies with a series of logistic regressions, which provide an estimate of the odds that a student transfers, controlling for local conditions and student background. We define transfer students as all students who enrolled in a four-year college subsequent to their enrollment in a two-year college.

Each specification follows the basic functional form given by (1) below:

$$\log\left(\frac{\theta}{1-\theta}\right) = \alpha + \beta_1 P + \beta_2 C + \varepsilon \quad (1)$$

Coefficients from these logistic models reflect the marginal change in the log odds of transferring with differences in policy components ( $\beta_1$ ) and a series of explanatory control variables ( $\beta_2$ ). The change in odds is computed by exponentiation of the regression coefficient, and  $e^\beta - 1$  can be interpreted as the percent change in odds given a one-unit change in the explanatory variable.

Across all specifications, we control for several factors that potentially affect students' desire or ability to transfer from a two-year to four-year college regardless of the state transfer and articulation agreement in place. First, we control for the local labor market conditions with indicators of the local wage rate and local unemployment rate. Second, we control for the state

post-secondary environment indicators of four-year attendance and the relative tuition cost of two- and four-year institutions. Finally, we include several student background factors including gender, minority status, family income, parents' post-secondary enrollment, and a composite score of students' cognitive ability. These summary statistics are presented in **Table 2**.

### ***Results***

Below, we present the results of our multivariate, cross-sectional models exploring the relationship between transfer and articulation policies, the components of these policies, and the strength of these policies and the rates at which students transfer from two-year to four-year colleges. In this analysis, we first explore the average impact of having a transfer and articulation policy at the state level as well as the distinct impact of different components of these policies on two- to four-year transfer rates. We then investigate whether these policies have had a differential impact on African-American students, Hispanic students, or first-generation college students. Finally, we look at the relative impact of these state-level policies and basic institutional conditions – including expenditures on instruction and student services, and the share of tenured faculty – on transfer rates.

#### *State transfer and articulation policies and a successful two- to four-year pipeline*

State transfer and articulation policies aim, in part, to improve the rate at which students transfer from two- to four-year colleges with a variety of initiatives that regulate curriculum and course requirements in post-secondary institutions and mechanisms that monitor the rate of student transfers. Although research by Anderson, Sun and Alfonso (2006) finds that the existence of transfer and articulation agreements had no impact on student transfers from two- to

four-year colleges, our analysis offers a more-nuanced story about the relationship between such policies and student transfers. That said, we also conclude that the presence of these policies do not correspond with improved transfer rates for most community college students.

**Table 3** details the coefficient estimates for a series of logistic regression models of students' transfer from two- to four-year colleges as a function of the state transfer and articulation policy as well as a series of control variables (specified above). In this table, we present a sequence of models beginning with a baseline model that estimates the log odds of transferring given our series of local economic and post-secondary conditions and student background characteristics. Five additional models are included, where the state policy is specified as follows: (a) a single dummy variable indicating the presence of a legislated state policy, (b) a series of variables indicating the overall strength of the state policy, (c) a series of variables indicating the components of the transfer policy, (d) a series of dummy variables reflecting the strength of the transfer mechanisms, and (e) variables indicating the scope of reach for the policy along with the transfer component strength.

Looking first at the baseline model (Column A of **Table 3**), we learn that the most powerful predictors of a students' transfer are, unsurprisingly, student background variables. Students coming from middle-income (\$35,000-74,999) and high-income (more than \$75,000) families are 44 percent and 79 percent more likely to transfer than students from families with incomes of less than \$15,000.<sup>3</sup> In addition, students who scored better on a measure of cognitive ability were also more likely to transfer. Of the factors reflecting the state and local context, the only one that appears to predict the transfer rate is the percent of students attending a four-year

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<sup>3</sup> 'Families with incomes less than \$15,000' is the model's reference group. While students from families in the next income bracket (\$15,000-\$34,999) may also show a higher chance of transferring (the logistic coefficient is positive), the coefficient for this income group is not statistically significant suggesting that students in this income group are not statistically different from the lowest income group.

institution in the state. The higher the share of the state's students who are in four-year institutions, the less likely a two-year college student is to transfer from a two- to four-year college. This finding could be suggestive of a couple of different situations. If the relatively high numbers of four-year students reflects a relatively large four-year system in the state, most students hoping for (and in a position to earn) a four-year degree might opt to enroll directly in a four-year college, leaving few students who begin their bachelor's degree in two-year colleges. Alternatively, the relatively high number of students in the four-year schools could also mean that few seats are available for transfer students at the four-year colleges.

As we add indicators for the state transfer and articulation policy, we first ask if these variables seem to predict the likelihood of a student's transfer. We also ask if adding policy indicators seem to lessen the importance of family income, thereby potentially improving equity for access to and attainment in higher education.

Looking across all specifications that reflect state transfer and articulation policies, we find no evidence that these policies have boosted the chance a student will transfer from a two- to four-year college. The simple model indicating the presence of a state policy presented in column B of **Table 3** shows that the effect of the policy is not only insignificant but the coefficient is actually negative – in other words, the opposite of what the theory would predict. This finding, while surprising, is consistent with prior research (Anderson, Sun, and Alfonso 2006).

Policies, however, are not created equal. Column C of **Table 3** shows the relative effect of policies based on the “strength index,” with the reference group being states with no state transfer policy at all. Again, overall policy strength indicators run counter to expectations. Instead of finding that students in states with stronger policies are *more likely* to transfer from

two- to four-year colleges, the only statistically significant effect appears for states with relatively weak policies and this effect is negative. Based on this model, we can expect students in states with weak policies to be 50 percent less likely to transfer than students in states without policies. The chance that students will transfer in states with moderate or strong policies is not statistically different from those in states without policies.

One possible explanation for these counterintuitive findings is that states may decide to (or *not to*) adopt these policies because of a perceived need. That is, states adopting policies do so because they feel there are relatively too few students transferring between two- and four-years schools in their state, whereas states deciding not to pursue such policies may conclude that they are unnecessary because their transfer rates are already high. Even if states adopting policies see improvements in transfer rates over time, we will not detect these effects unless the transfer rates in policy states improve enough to exceed the rates in non-policy states. As such, our findings may reflect the endogeneity associated with the underlying state factors that are driving transfer and articulation policies, rather than the causal impact of these policies on the decisions made by students.

Having said that, it is worth asking if these gross measures of transfer and articulation policies are masking important distinctions that an examination of more-refined policy variables might reveal – something not yet done in previous research. To test this notion, we focus on five different individual policy components that would directly impact two-year students' preparation for and application to four-year institutions, as well as a composite score reflecting the strength of these policies. These components include (1) the automatic acceptance of an associate's degree for transfer to a four-year college, (2) standardized credit requirements but without subject specifications, (3) standardized credit requirements in specific subjects, (4) common

requirements for program majors, and (5) common course numbering. As seen in column D of **Table 3**, only the automatic transfer of an associate's degree and common course numbering show positive coefficients that would suggest these components increase the likelihood that students transfer. However, neither of these effects is statistically significant. Again, we are left with little evidence that these policies are related to transfer rates.

Additionally, it does not seem that the combined strength of the transfer components had the desired effect (see column E in **Table 3**). The composite indicators reflecting the strength of the transfer components shows a negative (though not significant) association between the transfer components strength and the chance a student would transfer.

The only policy factor that seems to differentiate state policies in terms of their impact on student transfers is the percent of students covered by the state transfer policy. States vary widely in which post-secondary institutions fall under the governance of the agreement. For example, some states include only state institutions; others include all state institutions but exempt their state's flagship institutions; and some include both state and private institutions. Column F of **Table 3** reveals that the type of coverage may matter. In particular, the higher share of private school students covered has a statistically significant and positive effect on the likelihood that a student will transfer. However, the policy factors (presence and transfer component strength) still show a negative effect on transfers. As such, students in states with a policy reach that extends to a large number of private school students may be more likely to transfer than in states with a narrower reach, but they may still be less likely to transfer than students in states without a policy at all.

*Does the policy matter more for some?*

Given the goal of improving equity in post-secondary attainment, certain subgroups of students merit additional attention, including lower income students, first generation college students, and minority students – all of which are under-represented in four-year colleges and over-represented in two-year colleges. Community colleges serve a large number of students in these subgroups, many of who come from families or communities with limited exposure to U.S. higher educational institutions. Because these students are less likely to be prepared for post-secondary schooling (Lee and Frank 1990) or to draw on experiences from their families or communities (Tym, McMillion, Barone and Webster 2004), they are poised to benefit greatly from added clarity and fluidity offered by state transfer and articulation policies.

Although we have found thus far that the policy, its strength, or any of its individual components has not had a widespread impact on the likelihood that students transfer from two- to four-year colleges, it is still possible that these policies have mattered more for students who may require extra guidance through the post-secondary system. To test this hypothesis we explore a series of models that examine the interaction between the policy and a student's subgroup status. The results by subgroup are illustrated in **Figure 2**, which compares the change in the odds of transferring for a given subgroup in states with agreements to the relative odds of transfer in states without agreements. A bar rising above the axis line indicates that the subgroup shows increased odds in states with agreements, while a bar falling below the axis reflects lower odds of transferring in agreement states.

We find negative but not statistically significant policy effects both for students whose parents had no post-secondary experience and for African-American students. However, we do

find a positive and statistically significant for Hispanic students. It appears that Hispanics students, who have on average a 20 percent lower odds of transferring to a four-year college, have a 78 percent higher odds of transferring when in a state with a transfer policy than they do in states without transfer policies. Such a substantial result is surprising enough to warrant further investigation.

First, it should be noted that only about 18 percent of the sample is Hispanic and only 25 percent of the sample's Hispanic students attended two-year institutions in agreement states. Such small numbers can compromise the robustness of any results, but given the strong significance of the result, the small sample size probably cannot disqualify the findings. We also explore two possible explanations for this result: (1) that the sample's Hispanic students in agreement states were concentrated in states with unusually high transfer rates or, conversely, that Hispanic students in non-agreement states were concentrated in states with unusually low transfer rates, and (2) that Hispanic students were disproportionately more likely to aspire to transfer. While we do see Hispanic students concentrated in Florida (an agreement state) and California (a non-agreement state), the result persists even after we control for all students in these states, thus the effects are apparently not driven by a Florida or California state effect. Moreover, the result does not seem to be driven by student aspirations. While the degree (associate or bachelor) a student aspires to certainly predicts whether a student ultimately transfers, the interaction effect of the policy for Hispanic students persists. Although our earlier results suggest that transfer and articulation policies offer little improvement in the transfer of students from two- to four-year colleges, these models examining student subgroups offer a somewhat more hopeful result, at least for Hispanic students.

*How do state transfer and articulation policies compare with other factors?*

Up to this point, we have described the relationship between transfer and articulation policies on the rate at which students transfer from two- to four-year colleges as modest overall, though potentially more valuable for certain subgroups of students. However, it is hard to know how much or how little these policies matter until we look at other policy issues that can impact the same goals. In this section, we compare the impact of the state transfer and articulation policies to the two-year college's level of expenditures at the students' two-year institution and the percent of tenured faculty at the two-year institution.

It is not difficult to understand why per-pupil expenditures for instruction might make a difference in the chance that a student would transfer from a two- to four-year college. When more resources are devoted to instruction, institutions can hire more and higher-quality faculty, support office hours where students can access faculty, and support lab courses as well as any number of other instructional supports. These and other benefits hold the potential to improve the quality of the student's education and preparation for more advanced coursework.

However, students in two-year colleges might need more than just academic preparation. Advising and counseling may also be important for these students, who often come to post-secondary institutions with unclear expectations, who are unfamiliar with large educational institutions, and who are often part time students whose attention is understandably divided between their schooling, work, and families.

Although the allocation of resources is important, a student's educational experience fundamentally hinges on the quality of instruction in the institution. In a recent study of students who successfully transferred from a two-year to a four-year college – even those who had no prior expectation to do so – students reported that their instructors' attention and expectations

were key to giving them skills and confidence to transfer (Rosenbaum et al. 2006). Since measuring the quality of teaching is not easy, debate surrounding the quality of teaching in community colleges often focuses on the use of part-time faculty.

Provasnik and Planty (2008) report that in 2003 two-thirds of faculty held part-time appointments, raising concerns that part-time faculty are not as present, committed or professionally advanced as full-time faculty. Some researchers argue that many faculty choose part time status because they remain engaged in their primary profession but are no less committed to teaching or capable of teaching than their full-time counterparts (Leslie and Gappa 2008). Schuetz (2002), on the other hand, drawing from a survey of community college faculty, found significant differences in the instructional approach of part-time and full-time faculty. Specifically, part-time faculty members were less likely to use interactive instructional approaches than full-time faculty. Moreover, she found that part-time faculty members were less likely to engage with students outside the classroom, something found to be important for community college student success. Jacoby (2006) and Eagen and Jaeger (2009) reinforce these findings, reporting that the more students take classes with part-time faculty the less likely they are to complete their associate's degree. Though this remains a debated issue, it is nonetheless an important policy decision for these institutions and might reasonably have implications for the rate at which students transfer. Since we do not have access to data on the number or share of faculty with full- or part-time status in 1992, we approximate the institution's commitment to full-time faculty with the share of tenured faculty. Though tenure is a level of commitment (for both teachers and the institutions) beyond simply full-time status, the percent of faculty with tenure should indicate the institution's commitment to full-time faculty.

In the end, we learn that per-student expenditures for instruction and students services has little association with the chance that a student might transfer, but share of tenured faculty does have a significant effect. **Table 4** shows that neither expenditure variable shows statistically significant effects. However, students at schools with higher shares of tenured faculty are more likely to transfer from the two-year college to a four-year college. For every 10 percent increase in the percent of tenured faculty in the two-year college, holding all else equal, the chance that a student will transfer to a four-year college increases by 4 percent. The effect of tenured faculty is remarkable not only because it seems to have a positive effect on transferring, but also because it has an effect across all students, something not found for the transfer and articulation policies.

***Why isn't there a clearer relationship between states' policies and transfers?***

On the surface, the aim of these policies is to increase the clarity and fluidity between complex institutions and improve the chances of successful transfers for students who often lack the background and guidance needed to navigate post-secondary institutions.. Although these data are limited in their explanatory power and, as we noted above, our cross-sectional analysis cannot reflect any transfer improvements within the state over time, it is clear that these policies have not had large impacts on transfer behavior – so it is reasonable to ask why.

Two simple explanations for the policy failure are weak design or poor implementation. Anderson, Sun, and Alfonso (2006) observe that many agreements were just that - agreements without legislative authority. However, when they examined the transfer effect of policies in states *with* legislative agreements, they also found no effect on student transfers. Our results suggest that the reach of the policy across institutions might matter as well. We find a greater likelihood of transfer in states where the agreement included more students in private institutions

but, overall, students in states with agreements saw little or no greater change in the odds of transferring than did students in states without agreements.

Others point to weak implementation. Sack (2006) reports that on a 2004 study by Holaday and McCauley that found, despite the existence of policies to unify two- and four-year curriculum and institutions, individual institutions still exercised a fair degree of discretion in the extent to which they participated in the policy measures. Despite efforts to unify curriculum across institutions, a researcher from Illinois found that the state's main university, the University of Illinois, remained skeptical about the curriculum quality in the state's two-year institutions and continued to follow its own transfer guidelines instead of those written into the state agreement (Sack 2006). Certainly, poor implementation presents a reasonable explanation for the weak results.

Some levy a more fundamental critique of these policies and the purported role they might play in student transfers, charging that they were not designed to increase the chance of transfer at all. Roksa and Keith (2008) are not convinced that improving information to students and institutions and offering more fluid transfer, as we argue, would improve transfers. Instead they contend that these policies only help students *after* they transfer, by minimizing credit loss and reducing the number of courses they must take to graduate. The authors believe that the more appropriate outcomes to consider include the number of credits transferred, number of credits to graduation, and graduation rates, although their study found no improvements in any of these outcomes. While it is possible that the policy elements may more directly impact outcomes after transfer, it is still reasonable to imagine that better informed students would be better positioned to transfer. Moreover, our results showing that Hispanic students are more likely to transfer in agreement states suggests that the policies may, in fact, influence student transfers.

The better question to ask might be why these policies do not increase the chance of transfer for more students.

Other authors who critique the underlying motivation of the policies do not rule out the chance that these policies might have some role in improving transfers, but suggest that improving transfers might have been a secondary concern. Anderson, Alfonso and Sun (2006) argue instead that the primary goal of these policies may have been to increase the legitimacy of the two- to four-year pathway as a means to earning a bachelor's degree. They go on to make the case that, because two-year colleges are considerably less costly than four-year colleges, improving the pipeline between the two institutions effectively acts as a strategy to lower the cost of a bachelor's degree. They further argue that, by legitimizing the two- to four-year pathway, states risk "crowding out" low-income and minority students from two-year institutions as more middle-class students opt for this pathway. If the policy ends up encouraging more middle-class students to enroll at two-year colleges when they might otherwise have enrolled directly into four-year colleges and might reasonably be the sort of student that would already be highly likely to transfer without the policy, we would see no effect on the likelihood of transfer in our models for these students. If improving the chance that low-income and minority students transfer is only of secondary interest, the inconsistent effect across student types would not be surprising.

The most compelling explanations, however, might be that the benefits of these policies are simply over shadowed by the myriad other concerns students face when deciding to transfer from a two- to four-year institution. At a recent conference of the Association of American Colleges and Universities, conference participants representing both two- and four-year institutions across the country argued that transfer students, who often must first overcome low

expectations and poor academic preparation, are faced with the prospect of relocating away from families and jobs and taking on much higher tuition burdens in order to attend a four-year college. Moreover, students who do apply to a four-year college and are accepted can find themselves accepted to the college, but not to the department of their choice, leaving them in a strange limbo state.

While none of the higher education officials in attendance felt that these policies should be abandoned – the alternative of institution-to-institution agreements is far more challenging to deal with – they all agreed that such policies should be considered only a small part of a more comprehensive effort that involves institution- and student-level efforts to improve transfer opportunities.

We will continue to explore whether these policies correspond with other important gains for post-secondary students. In particular, we will follow up on work by Roska and Keith (2008), who examine the association between the presence of a state agreement and degree completion, to investigate whether different transfer components correspond with improved bachelor's degree completion. Finally, prompted by our findings on the relationship between tenured faculty and student transfers, we intend to seek out quantitative data on the relationship between institutional factors of post-secondary attendance and attainment, and conduct further analyses in this area.

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## Tables and Figures

**Table 1: Summary of Transfer Agreements between 1992 and 1999 (n=43)**

	1992	1999
States with legislated agreements	24	34
Overall agreement strength		
No transfer policy (0)	19	9
Weak (1)	2	1
Moderate (2)	13	16
Strong (3)	9	17
<i>Average overall strength</i>	1.279	1.953
Transfer components		
AA degree that automatically transfers	18	23
Common general education requirements	14	22
Common general education core	14	24
Common requirements for program majors	4	7
Common course numbering	7	13
Transfer component strength		
No transfer policy (0)	19	9
Weak (1)	7	7
Moderate (2)	10	13
Strong (3)	7	14
<i>Average transfer component strength</i>	1.116	1.744
Maintained agreement from 1992 to 1999		23
Enacted agreement in 1992		2
New agreement		11
Never enacted a statewide agreement		8
Retracted agreement		1

**Table 2. Summary Statistics**

	Total		Agreement (N= 1197)		Non-Agreement (N=2201)	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
<i>State Environment (N= 43)</i>						
Articulation Policy	0.56		1.00		0.00	
Policy Strength						
No Policy	0.44		--		1.00	
Weak	0.16		0.08		--	
Moderate	0.23		0.54		--	
Strong	0.16		0.38		--	
Transfer Component Strength						
No Policy	0.44		--		1.00	
Weak	0.05		0.29		--	
Moderate	0.30		0.42		--	
Strong	0.21		0.29		--	
Transfer Components						
AA Degree that Automatically Transfers	0.42		0.75		--	
Credit Requirements without Subjects	0.33		0.58		--	
Credit Requirements in Specific Subjects	0.33		0.58		--	
Requirements for Program Majors	0.09		0.17		--	
Common Core Numbering	0.16		0.29		--	
Undergraduates Covered by Transfer Components (%)						
Public Institutions	48.13	46.94	86.24	24.38	--	
Private Institutions	2.74	11.76	4.91	15.54	--	
Students Attending Public Four-year Institutions (%)	45.40	14.97	45.90	15.45	44.77	14.72
Ratio of Four-year Tuition to Two-year Tuition	6.45	6.56	5.43	1.72	7.73	9.67
<i>Local Environment (County) (N= 504)</i>						
Unemployment Rate	20.43	3.98	20.00	3.76	20.74	4.10
Annual Salary (per \$1000)	6.16	2.97	5.69	2.19	6.49	3.38
<i>Postsecondary Institution (N= 822)</i>						
Per Student Spending (per \$1,000)						
Student Services	0.48	0.47	0.45	0.39	0.50	0.52
Instructional	1.80	1.34	1.88	0.83	1.75	1.59
Percent Tenured Faculty	23.51	41.08	15.54	35.02	28.78	43.88
<i>Student Characteristics (N= 3,398)<sup>A</sup></i>						
Female	0.52		0.55		0.50	
Hispanic	0.14		0.07		0.17	
Black	0.09		0.08		0.09	
Family Income						
Low (\$14,999 or less)	0.11		0.09		0.12	
Low-mid (\$15,000-\$34,999)	0.25		0.26		0.25	
High-mid (\$35,000-\$74,999)	0.35		0.37		0.34	
High (more than \$75,000)	0.06		0.06		0.06	
Failed to Report	0.22		0.22		0.22	
Expect to Obtain Bachelor's Degree	0.55		0.52		0.57	
Parents with High School Education or Less	0.53		0.56		0.52	
Standardized Test Composite Score	49.26		49.89		48.90	

<sup>A</sup> Weighted to be representative of U.S. high school graduates in 1992.

**Table 3. Transfer from two-year to four-year college (N =3398)**

	Column A	Column B	Column C	Column D	Column E	Column F
	Baseline	Policy Presence	Overall Policy Strength	Individual Transfer Components	Transfer Component Strength	Component Strength and Scope
Intercept	-4.179 ***	-4.103 ***	-4.151 ***	-4.204 ***	-4.130 ***	-3.934 ***
SE	0.588	0.669	0.599	0.602	0.667	0.629
<i>State Environment</i>						
Presence of Transfer and Articulation Agreement		-0.058		-0.351		
SE		0.164		0.257		
Overall Policy Strength <sup>A</sup>						
Weak			-0.691 ***			
SE			0.017			
Moderate			0.088			
SE			0.179			
Strong			-0.104			
SE			0.241			
Individual Transfer Components						
AA Degree that Automatically Transfers				0.533		
SE				0.327		
Credit Requirements without Subjects				-0.401		
SE				0.299		
Credit Requirements in Specific Subjects				-0.007		
SE				0.180		
Requirements for Program Majors				-0.151		
SE				0.375		
Common Core Numbering				0.506 †		
SE				0.296		
Undergraduates Covered by Transfer Components (%)						
Public Institutions						0.007 *
SE						0.003
Private Institutions						0.028 ***
SE						0.007
Transfer Component Strength <sup>B</sup>						
Weak					-0.228	-0.762 **
SE					0.219	0.241
Moderate					0.112	-0.450 *
SE					0.182	0.180
Strong					-0.141	-0.955 **
SE					0.266	0.302
Students Attending Public Four-year Institutions (%)	-1.415 *	-1.423 *	-1.129	-1.201 †	-1.298 †	-1.873 **
SE	0.699	0.713	0.699	0.650	0.708	0.007
Ratio of Four-year Tuition to Two-year Tuition	0.001	0.001	0.002	0.002	0.001	-0.001
SE	0.003	0.003	0.003	0.003	0.003	0.003
<i>Local Environment (County)</i>						
Unemployment Rate	-0.010	-0.012	-0.017	-0.012	-0.016	-0.010
SE	0.020	0.021	0.021	0.020	0.021	0.020
Annual Salary (per \$1000)	0.013	0.012	0.012	0.013	0.012	0.015
SE	0.014	0.015	0.015	0.015	0.015	0.140
<i>Student Characteristics</i>						
Female	0.043	0.043	0.047	0.054	0.040	0.031
SE	0.105	0.105	0.104	0.106	0.106	0.109
Hispanic	-0.205	-0.207	-0.195	-0.227	-0.197	-0.198
SE	0.168	0.171	0.177	0.167	0.175	0.174
Black	-0.264	-0.267	-0.265	-0.291	-0.255	-0.242
SE	0.283	0.282	0.281	0.283	0.281	0.283
Family Income <sup>C</sup>						
Low-mid (\$15,000-\$34,999)	0.197	0.197	0.193	0.184	0.193	0.181
SE	0.196	0.196	0.197	0.195	0.196	0.194
High-mid (\$35,000-\$74,999)	0.366 *	0.367 *	0.369 *	0.370 *	0.364 *	0.366 *
SE	0.171	0.172	0.172	0.172	0.171	0.171
High (\$75,000-\$200,000 plus)	0.582 **	0.583 **	0.584 **	0.574 **	0.579 **	0.566 **
SE	0.175	0.175	0.178	0.176	0.175	0.174
Parents with High School Education or Less	-0.059	-0.062	-0.058	-0.057	-0.061	-0.053
SE	0.097	0.097	0.097	0.097	0.097	0.099
Standardized Test Composite Score	0.061 ***	0.061 ***	0.061 ***	0.061 ***	0.061 ***	0.060 ***
SE	0.006	0.006	0.006	0.006	0.006	0.006
log likelihood	-1754.999	-1754.822	-1750.752	-1749.117	-1752.830	-1743.415
Wald Chi-Square	353.390 **	402.970 **	525.360 **	465.180 **	423.460 **	483.790 ***
Pseudo R-Square	0.051	0.051	0.054	0.054	0.052	0.058

† p < .10, \* p < .05, \*\* p < .01, \*\*\* p < .001

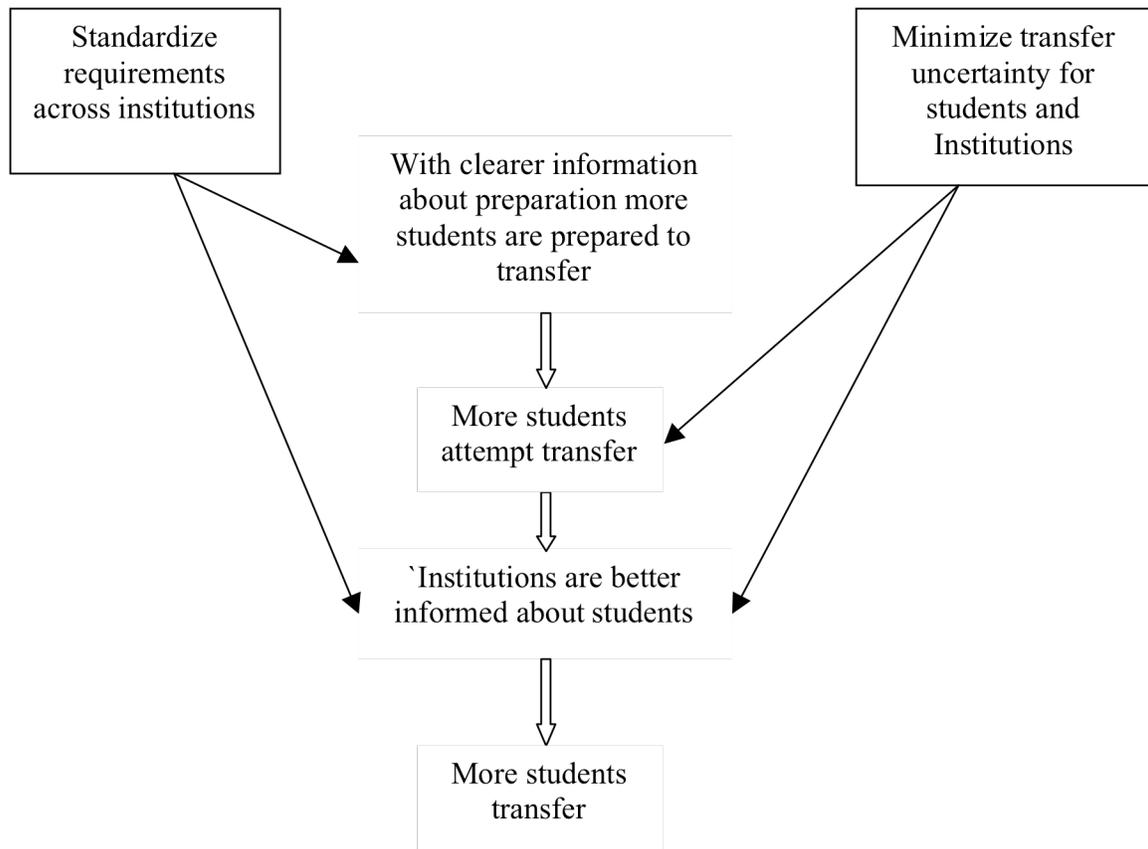
<sup>A</sup>Referent group is no statewide policy; <sup>B</sup>Referent group is no statewide policy; <sup>C</sup>Referent group is low income (\$0-\$14,999)

**Table 4. Institutional Factors and Likelihood of Transferring from Two-year to Four-year College (N =3398)**

Intercept	-3.931 ***
SE	0.615
<i>State Environment</i>	
Transfer Component Strength <sup>B</sup>	
SE	
Weak	-0.619 *
	0.299
Moderate	-0.377 †
	0.207
Strong	-0.858 *
Undergraduates Covered by Transfer Components (%)	0.342
Public Institutions	0.006 *
	0.003
Private Institutions	0.028 **
	0.008
Students Attending Public Four-year Institutions (%)	-2.083 **
	0.679
Ratio of Four-year Tuition to Two-year Tuition	-0.007 *
<i>Local Environment (County)</i>	
Unemployment Rate	-0.005
	0.020
Annual Salary (per \$1,000)	0.016
	0.014
<i>Postsecondary Institution</i>	
Per Student Spending (per \$1,000)	
Student Services	0.105
	0.207
Instructional	-0.068
	0.068
Percent Tenured Faculty	0.004 **
	0.001
<i>Student Characteristics</i>	
Female	0.031
	0.111
Hispanic	-0.197
	0.180
Black	-0.242
	0.287
Familv Income <sup>C</sup>	
Low-mid (\$15,000-\$34,999)	0.173
	0.193
High-mid (\$35,000-\$74,999)	0.364 *
	0.165
High (\$75,000-\$200,000 plus)	0.569 ***
	0.161
Parents with High School Education or Less	-0.051
	0.097
Standardized Test Composite Score	0.060 ***
	0.007
log likelihood	-1735.785
Wald Chi-Square	708.330
Pseudo R-Square	0.062

† p< .10, \* p< .05, \*\*p<.01, \*\*\*p<.001

**Figure 1. Increasing Student Transfers with Transfer and Articulation Policy:  
A Theory of Action**



**Figure 2. Changes in the Odds of Transferring in Agreement States Relative to Non-Agreement States**

