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How Private Tutoring Enters Educational Transitions Involving Selection: A Synthesizing Review

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Abstract: This review examines private tutoring around educational transitions that involve selection: entrance examinations, ability tracking, and admission to selective schools and universities. Research on the subject is spread across the economics of education, the sociology of education, comparative education, and qualitative scholarship, and it mixes several distinct objects: who takes part in tutoring, test scores, admission outcomes, and performance after entry. A finding established at one of these levels is often carried over to another, which leaves conclusions about whether tutoring affects selective transitions hard to compare. This is a synthesizing review of studies that explicitly tie tutoring to a selective transition, and it treats tutoring as a mainly household-financed or otherwise privately arranged resource brought to bear when places are allocated. The findings are sorted along three dimensions: the institutional form of selection the transition runs through, the level at which a study measures its outcome, and the consequences that differently placed groups meet under particular selection rules. The argument is that tutoring does not act on selective transitions in one way; its measured significance depends on all three at once. Its contribution is a common frame of reference for comparing otherwise dissimilar studies.

Keywords: Shadow Education; Private Tutoring; Educational Transitions; Selection; Stratification; Comparative Education

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1. Introduction

Private tutoring has spread worldwide, and it is most visible at the moments when students are sorted into different educational paths. In the literature on shadow education, private supplementary tutoring is usually understood as instruction that shadows the formal school system [1,2,3,4]. Such moments are educational transitions: points of allocation and stratification where students move into destinations that carry different opportunities [5]. They include sitting an entrance examination, being placed into an academic or vocational track, and competing for a place at a selective school or university. The review focuses on the subset of these transitions that run through explicit selection. In the high-stakes systems of East Asia, which have drawn the most attention, heavy participation around major examinations is documented in Japan [1,6], South Korea [7], and China [8]. Preparatory markets and related forms of test preparation have also grown up around selective transitions in Europe [9,10], South Asia [11,12], and Russia [13]. It is this point of transition, and the way the research literature has described tutoring's role in it, that concerns the review.

The difficulty that motivates this review is that the literature is hard to read as a single body of evidence. Studies move among several objects without always marking the shift. Some ask who takes part in tutoring [14,15,16]. Some estimate its effect on test

scores [8,13,17,18]. Others trace its link to admission or enrollment [1,19,20], or follow students into the destinations they enter and measure how they do afterward [12,21]. These are different questions with different answers, but a conclusion reached about one is routinely carried over to another: a finding about scores becomes a claim about access, or an association is reported as a cause. The risk is real, not merely hypothetical: the exchange between Buchmann's team and Grodsky [19,44] turned on exactly this question, whether a measure of test preparation could separate its contribution to scores from its contribution to college destinations. Bray [22] makes a related point, tracing the inconclusive state of research on tutoring's effectiveness partly to the different ways studies define and measure it.

From this follows the review's central argument: private tutoring does not enter selective transitions in a single way. Because it is a privately arranged resource brought to bear when places are allocated, what a study can say about its significance depends on three things at once: the institutional form of selection the transition runs through, the outcome level the study measures, and where students and families sit under the selection rules. What binds the three together is the selection rule itself: it converts a score into an allocation, and that conversion is the point at which the form of selection, the level at which an effect is measured, and a student's position jointly fix what tutoring does. These three dimensions (institutional form, outcome level, and group consequence) recur throughout the literature, and the review is built on them. It asks how studies have conceived and measured the ways tutoring enters selective transitions, and what comes into view once their findings are organized this way.

Several reviews of shadow education already exist. Zhang and Bray [4] survey the growth of comparative research on the subject and set an agenda for it. Luo and Chan [23] use an ecological-systems framework to examine how shadow education shapes the wider ecology of education. Park and colleagues [24] review the student, family, and system factors behind participation in learning beyond school. Their concerns are, respectively, how the field has developed, what shadow education does to the wider ecology of education, and who participates. This review asks something narrower: how tutoring enters transitions that involve formal selection, keeping the outcome levels of score, admission, and post-entry performance apart.

2. Scope and Approach

The review uses shadow education, or private supplementary tutoring, in its established sense: fee-charging or privately arranged academic instruction that takes place outside formal schooling and is oriented toward the formal school career [1,2,3,25]. Its core object is household-financed or privately arranged tutoring. Adjacent terms such as coaching and test preparation are included when a study treats them as privately arranged or supplementary preparation for a formal educational competition, as in work on SAT preparation [19,26] or entrance-examination preparation [8,13].

A transition involving selection is the subset of the educational transitions introduced above in which the sorting runs through a formal selective mechanism: an entrance examination, admission to a selective school or university, a tracking decision, or competitive entry to a particular program. The term is a descriptive label for a recognized class of transitions, and it draws on the literature on educational allocation, tracking, and stratification that serves here as conceptual background [5].

This is a synthesizing review: it aims to integrate studies that connect private tutoring to such transitions and to read them within a common frame, not to catalogue the literature exhaustively. Its selection of studies is accordingly purposive: the several dozen studies discussed below were chosen to illustrate the range of settings, outcome levels, and groups the framework organizes, and the three dimensions developed here emerged from repeated reading of this literature. Relevant work was located through Scopus, Web of Science, and ERIC, combining terms for the phenomenon (private tutoring, shadow education, cram school, juku, gaokao, hagwon, dershane, coaching, and test preparation) with terms for the setting (entrance examination, tracking, admission, selective school, and selection), and the reading was extended by forward and backward citation tracing from key studies and existing reviews. The review focuses on studies that report empirical findings linking tutoring to a particular selective transition, and draws only incidentally on work that treats tutoring in general terms or reports no empirical findings.

The review covers only work published in English, which leaves out research in Japanese, Korean, Chinese, and other local languages. Because it leans heavily on East Asian cases, this is a real constraint: some of the most developed national literatures on tutoring are not in English. Even so, the corpus spans East Asia, Europe, South Asia, North America, and the post-Soviet region. It is not a meta-analysis and estimates no average effect; the aim is to place studies with different settings,

outcomes, and claims in relation to one another.

The review synthesizes the empirical findings of the studies it discusses; any claim that those findings add up to a pattern is the review's own. Throughout, it keeps apart the different levels at which those findings sit, from a measured association to an actual admission outcome.

3. The Institutional Form of Selection

How tutoring enters a transition varies with the institutional form of selection it runs through, and not only in how much tutoring there is but in what kind. The kind is what matters here. Different selective systems do not simply generate more or less tutoring; they generate tutoring that is organized differently, so that the same word names a different activity from one system to the next. This is the first of the review's three dimensions.

The three forms below are ideal types, each capturing a different aspect of a selective setting, and a real case can hold more than one at once. The Joint Entrance Examination for the Indian Institutes of Technology, for instance, is both a high-stakes terminal examination and a competitive route into a particular set of institutions, so it falls under more than one type.

The first form is the high-stakes terminal examination, in which a single test concentrates the consequences of selection at one point. When so much depends on one test, tutoring tends to consolidate into a large and durable commercial industry, and because the exam is decisive, that industry reaches well beyond instruction. Japan is the clearest case. Mawer [27] shows that the juku, Japan's cram-school businesses, form a sizable market whose services run from entrance-examination preparation to individualized, quasi-pastoral support used to recruit and retain students; the exam-anchored industry has thus diversified well past test preparation. The same exam-centered demand takes different shapes elsewhere. In South Korea, Kim and Lee [7] trace the very large demand for tutoring to a steep higher-education hierarchy paired with a secondary system that had been deliberately equalized, so that families turn to tutoring for the differentiation a leveled-down school system does not provide. In China, Zhang [8] examines private tutoring around the gaokao, where university access is concentrated in a single highly competitive test. At the far end of the type, Ørberg [11] describes how, around the Joint Entrance Examination for the Indian Institutes of Technology, coaching has become an assumed precondition for entry: a specialized industry treated not as an optional supplement but as a normal stage of the route. Across these cases the terminal examination does more than attract tutoring; it organizes tutoring into an institution of its own.

The second form is competitive admission to a particular selective school or program, where the transition turns on entry to a single contested destination, one set apart by status, curriculum, resources, or future opportunity. Tutoring here takes a narrower shape than the terminal-exam industry: targeted, format-specific familiarization and practice, keyed to one entry test and concentrated in the run-up to it. In England, grammar-school entry runs through the eleven-plus, a selective-entry test taken at about age eleven, and Hajar [28] describes the tutoring around it as familiarization with and rehearsal of that specific test in the months beforehand. Where such gates are introduced or restored, dedicated preparation markets tend to form around them. In Korea, Exley [29] reports that a partial return to selective schooling was seen by educators as feeding shadow education; in Finland, Jokila and colleagues [10] show preparatory-course markets growing up around competitive university admissions and commercializing entry preparation for a scarce set of places. In this form the format and timing of the admission gate largely fix what the tutoring is.

The third form is early ability tracking, where students are sorted into separate tracks early in schooling, and preparation around that sorting begins correspondingly early. The selective transition is placement into a differentiated route, and tutoring attaches to it from the outset and is differentiated by track. In Germany, the move from primary to secondary schooling assigns students to different secondary pathways, and Guill and Lintorf [9] found that in regions where this transition more closely resembled a high-stakes examination, the chance of attending private tutoring rose. Šťastný [30] shows the same logic at finer grain in the early-tracking system of the Czech Republic: the scale, the subjects, and the stated reasons for tutoring differ across tracks, and demand is driven by the competitive examinations that govern entry to the academic gymnasia. Track location thus shapes not just the amount of tutoring but its very features. In this form tutoring is not a single product but a route-specific accompaniment that varies with where in the system a student is being sorted.

Form, then, shapes what tutoring is and what it does, which is why it comes first in placing a study. Under a single word sit an

exam-anchored industry that has outgrown test preparation, a short-horizon drilling keyed to a particular admission gate, and an early, track-differentiated accompaniment to a sorting decision.

4. Outcome Levels and the Problem of Inference

The review reads each study by where in the transition it takes its measurement: performance on the test that feeds selection, the admission that follows, or performance after entry. The distinction builds on two existing concerns. Bray [22] accounts for how differences in what studies measure leave the evidence inconclusive, and Stevenson and Baker [1] treat allocation, in an early formulation, as a function distinct from achievement. What this review adds is to set the points in a single sequence, since they run in order: the score enters the selection, the selection yields an admission, and the admission precedes anything later. Because the points sit so close together, a result at one is easily taken for a result at the next. Which point a study actually measured, and how securely, is the second dimension.

Most of the evidence reviewed here sits at the first point, performance on the test that feeds selection, though the studies differ widely in what they can support, from simple associations to quasi-experimental designs. The most secure summary comes from experimental work: a meta-analysis of test-preparation experiments reports a small but statistically significant average effect on the large-scale, selection-relevant tests that feed admission [31]. That effect is conditional in several ways. It depends on design and population: using a difference-in-differences design on China Education Panel Survey data, Guo and colleagues [32] find a modest positive effect of subject-specific tutoring on lower-secondary scores. It depends on the form of preparation: for the SAT, Byun and Park [33] find commercial test-preparation courses associated with higher scores, especially for certain groups, while one-to-one tutoring shows weaker benefits. And it depends on subject: in Turkey, Berberoğlu and Tansel [34] find tutoring associated with higher performance in mathematics and Turkish, the subjects that feed the university entrance examination, but not in natural science. Even the choice of measure can decide the result. Kim [35], drawing on the Korea Education Longitudinal Study, found that tutoring spending tracked standardized test scores closely but bore no significant relation to school performance, so that the same spending looks effective on the exam that channels selection and ineffective in the classroom. Further studies across other settings converge on the same modest, conditional, and uneven picture [8,13,36,37,38,39,40,41]. What holds across all of them is narrow: a score-level result holds for the score, and says nothing yet about the admission the score later feeds.

One study sits on the boundary between this level and the next. Rudolf and Kang [42] place tutoring within the Korean race for a top-ranked college and find that tutoring spending carries a statistically significant but small weight in explaining the college rank a student reaches, well below the weight of academic interest and self-rated skill. A college rank is both a measure of performance and a destination reached, and that is what makes the study a hinge between the score-level question and the question of allocation.

Studies that measure the destination itself, the admission or enrollment that selection produces, are far fewer, and they do not agree. Stevenson and Baker [1] placed shadow education within the transition to university in Japan and found participation in certain forms associated with eventual entry. Choi [20] estimated the chance of entering one of the most selective Korean universities, or a medical school, as a function of high-school tutoring spending, and found higher spending associated with a higher chance of entry, though the effect of one-to-one tutoring was not statistically significant. de Silva [43] points the other way: using an exogenous policy shock, a curfew on the operating hours of Korean tutoring academies, as an instrument for tutoring spending, the study estimates diminishing marginal effects of tutoring on college entrance, with clearer gains only in later degree completion. That a design built on a credible exogenous source of variation finds the entrance effect flattening is worth weighing, since the apparent advantage at this level may owe much to who buys tutoring rather than to tutoring itself. Buchmann, Condron, and Roscigno [19] measured at two levels at once, reporting effects of SAT preparation on both test scores and selective-college enrollment, which makes the gap between a score and a destination visible within a single study.

A third, smaller group follows students past the transition, and here the direction is again unsettled. Zumbuehl, Hof, and Wolter [21] linked PISA data to register data in Switzerland and followed tutored students both into a demanding selective school and through their performance once inside it. Comparing tutored students with untutored students of equal measured ability, so as to hold pre-transition ability constant, they found the tutored students more likely to struggle after entry. The

authors are careful to treat this as a relationship with post-entry performance, not a causal claim about access, since who takes up tutoring is not random. Alam and Forhad [12], using a two-stage least squares design in Bangladesh, found the opposite: students tutored for university admission earned higher grades in their later university programs.

How the literature reasons across these levels depends on the institutional form of selection set out above. The inference is hardest to make where places are scarcest and selection is closest to zero-sum: entry to a top university through the gaokao [8], a grammar-school place through the eleven-plus [28], or a single competitive admission [10,11]. In those settings a fixed number of places makes one student's gain another's loss, and advantage turns on relative position rather than absolute attainment. This is also why a score gain cannot be read straight off as improved access there: if tutoring lifts many candidates at once, it may raise the threshold without rearranging the queue, shifting relative position rather than widening entry. Where the destination can expand, as in the broad transition to university that Stevenson and Baker [1] measured (distinct from entry to the most selective institutions), the relative-position constraint loosens, and a score gain comes closer to standing for a better chance of entry. The Buchmann-Grodsky exchange [19,44] shows the difficulty plainly: Grodsky asked whether the study's measure of preparation could separate what private preparation contributes to scores from what it contributes to destinations, the very separation the inference requires.

Taken with the form of selection, the outcome level yields a working rule for reading the evidence: a finding holds at the level its study measured, and carrying it to another level calls for evidence gathered at that level. Only on this condition can the studies gathered here be compared.

5. Differentiated Consequences under Selection Rules

The third dimension asks for whom the measured result holds, and whether an advantage that favors some group at one step carries through to the next. A difference in who is tutored need not become a difference in who benefits, and a difference in who benefits need not become a difference in who is admitted. Placing a study on this dimension means locating it along that chain. This chain uses the same score, admission, and post-entry points as the previous section, but it asks a different question: not which level a study measured, but whether a group's advantage at one level survives into the next. The expectation that frames the chain comes from work on stratification: the theories of effectively maintained inequality and maximally maintained inequality hold that advantaged families secure position for their children at points of selection, converting resources into outcomes where access is contested [45,46]. This section asks whether private tutoring is one of the routes by which that conversion happens.

The chain begins with participation. That take-up of tutoring is patterned by family background is well established: Zwier and colleagues [16] document a socioeconomic gradient in participation, Matsuoka [15] finds such inequality even within a comparatively egalitarian compulsory system, and Kim and Lee [7] show spending concentrated among higher-income, higher-educated families. But participation inequality is where the chain starts, not where it ends. Who buys tutoring is an input, and a gap in inputs does not by itself establish a gap in who is selected; that follows only if the later links hold.

Whether the input converts into advantage depends on whom tutoring works for, and here the direction is unstable. Drawing on associational data around the gaokao, Zhang [8] finds lower-scoring students gaining most, and Guo and colleagues [32] report a similar pattern; in the other direction, Loyalka and Zakharov [13] find higher-achieving students benefiting more. The form of preparation moves the result as well [33]. Because these effects do not run in a single direction, a given participation gap may widen or narrow the eventual spread of outcomes, depending on which students it reaches.

What selection actually responds to is not the average effect but the distribution: the relative position of one student against the rest. Kang and Park [47] take this step directly, examining how the presence of private tutoring affects the distribution of student outcomes, and what that implies for inequality. The question shifts from how much tutoring helps to whether it stretches the ranking on which a fixed number of places is awarded. That the link from participation to a group gap is conditional is shown by a study using a gap-closing approach on Chinese middle-school data [48]: unequal access does not uniformly produce achievement gaps between high- and low-status students, and the share of the gap attributable to tutoring rises only at the extremes of the distribution.

At the admission level itself, evidence that isolates tutoring is scarce. The Swiss study discussed earlier [21] concerns this step

as much as the post-entry outcome already noted: holding measured ability constant, it relates prior tutoring to the probability of transition into the selective school, which places it at the admission step and not only after it. Past that single point of contact, whether a group's advantage in participation and effect carries through to who is finally selected rests more on theory than on direct measurement. The stratification account above [45,46], together with a political-economy model in which a participation gap emerges as richer parents invest more in tutoring [49], predicts that advantaged families convert tutoring into maintained position at the point of selection.

Which of these links holds depends in turn on the form of selection set out above: in some systems tutoring serves enrichment for already-strong students, in others remediation, a difference Lee [50] traces across countries and Entrich [51,52] ties to the structure of the system itself. Group consequence, in other words, loops back to institutional form.

6. Synthesis

The three dimensions define a space, and each study occupies one cell of it: the selective form its transition runs through, the level at which it takes its measurement, and the group whose result it reports. The three dimensions are analytically independent, the axes of that space; the studies distributed across it are not, and they cluster in patterns the next paragraphs trace. Holding the independent axes apart from the empirical clustering among studies is what lets the space do its work. Reading a study on all three at once keeps apparent disagreements apart. Two findings can look opposed under a loose reading: Kim [35] reports tutoring tracking higher exam scores, while Zumbuehl, Hof, and Wolter [21] find tutored students more likely to struggle after entry, so that asking only whether tutoring helps makes the two seem to conflict. They stop conflicting once their cells are marked, since each holds at a different point. The same applies across the other dimensions: change the selective form or the group, and tutoring no longer names the same activity, so results from different cells cannot be swapped.

Set side by side, the dimensions also show relationships among themselves that no single one reveals. The firmest joins institutional form to group consequence: as the fifth section argued, what tutoring does for a group depends on the selective setting it sits in. This is also where the chain set out there is best evidenced, at the link from a group's position to the kind and effectiveness of the tutoring it receives, and least evidenced at the far end, where that advantage would have to surface in who is admitted. A second relationship, between outcome level and group, appears in narrower form: the two kinds of SAT preparation that Byun and Park [33] distinguish line up with different groups, and the divide between a transition probability and post-entry performance in Zumbuehl and colleagues [21] runs along the same line. The other pairings remain open.

Reading studies on all three dimensions at once also locates a single cell that no one dimension reaches alone. The near-zero-sum forms identified earlier, where a fixed number of places makes one student's gain another's loss, are also the forms in which group consequence is sharpest. Yet among the studies gathered here these are the settings measured least often at the admission level. So the question of whether tutoring changes who is admitted is most pressing just where the evidence is thinnest.

This is the work the frame does. It returns no verdict on whether tutoring works; instead it shows that tutoring's significance in a selective transition is constituted by the three dimensions jointly (the selective form, the outcome level, and the group), so that work as different as that of Zhang, Buchmann, Zumbuehl, and Choi sits at distinct points. Read this way, the frame also marks one cell on which the central question turns and the evidence gives out.

7. Conclusion

This review began from a difficulty in reading the literature on private tutoring around selective transitions: its findings come from different institutional settings, are measured at different outcome levels, and concern students in different positions, which makes them hard to compare directly. Placing those findings along the three dimensions developed here shows why there is no single answer to whether tutoring is effective, and it yields one rule for reading the evidence. A result holds at the cell its study occupies, defined by its selective form, its outcome level, and its group, and it does not transfer to another cell without evidence gathered there.

The error the rule guards against is a common one in this literature: moving from participation or a test score to a claim about who is selected. A higher rate of tutoring among advantaged students, or a positive effect on scores, is routinely read as if it showed that tutoring changes who is admitted. That move is rarely warranted, because the step from a score to an allocation

runs through a selection mechanism that participation- and score-level studies do not observe.

The same frame also indicates where new work is most needed. The synthesis singled out one cell in which the central question is decided yet the corpus offers the least evidence: the scarce, near-zero-sum forms of selection, observed at the admission level, for differently placed groups. What would help most is research that brings tutoring practice, the formal selection mechanism, and the transition outcome into a single design, so that the effect of tutoring on a score, the working of the selection rule, and the resulting allocation are observed together.

A few studies already come close by observing more than one outcome level at once [19,21], which suggests such designs are workable. Until that work is done, participation rates or score effects alone do not warrant the conclusion that tutoring changes the outcome of a selective transition. The review's contribution is to make that requirement explicit and to provide, in the meantime, a frame within which the scattered existing findings can be compared.

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