

Discussion Paper Series

IZA DP No. 18972

September 2026

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Designing Effective Public-Private Partnerships in Education^{*}

Abstract

Publicly funded school choice is examined as a form of education public-private partnership (PPP), with cross-national differences interpreted through institutional design rather than private provision alone. A novel theoretical framework derives two indicators – alignment and coherence – from a formal utility-theoretic model of PPP maturity, applied here for the first time to education. Across seven systems, the results reveal substantial differences in how competition, autonomy, accountability, and information are jointly structured. The findings highlight institutional architecture and complementarity as central to the design of effective education PPPs.

JEL classification

I21, H42, H52

Keywords

school choice, public-private partnerships (PPPs), education vouchers, competition in education, autonomy, accountability

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^{*} We thank Eduardo Velez, Suzanne Roddis, Kristen Scott, Patrick Wolf, Xueshen Shi, Temurbek Rakhmatov, and participants at conferences at AERA, AEFPP, and Harvard University, for their helpful comments. The findings, interpretations, and conclusions expressed in this paper are solely those of the authors.

1. Introduction

School choice in the United States now encompasses several forms of public-private partnership (PPP). Traditional private school voucher programs operate in 15 states (EdChoice 2026), while publicly funded but independently governed charter schools are authorized in 45 states and the District of Columbia (National Center for Education Statistics 2023). Education Savings Accounts (ESAs), which allow families to use public education funds for private-school tuition and a broader range of approved educational expenses, have expanded rapidly and have now been enacted in 18 states (National Conference of State Legislatures 2026). At the federal level, the 2025 reconciliation law created the first federal tax credit scholarship program. Beginning January 1, 2027, Section 25F of the Internal Revenue Code will provide taxpayers with a dollar-for-dollar federal income-tax credit of up to \$1,700 for cash contributions to state-recognized Scholarship Granting Organizations, which in turn provide scholarships for eligible students (Congressional Research Service 2025). Together, vouchers, charter schools, ESAs, and the new federal tax-credit scholarship program illustrate the growing range of PPP arrangements through which public financing supports educational provision and choice outside traditional district-operated public schools.

PPPs are contractual arrangements between public authorities and private providers for the delivery of services, in which the costs, benefits and risks are shared by government and a private institution (Iossa and Martimort 2015). Theory shows that, under certain conditions, ownership may not affect the proper allocation of resources, and a well-crafted regulation may allow for the substitution of public provision by a private provider (Sappington and Stiglitz 1987; Shleifer and Vishny 1994).

Aside from issues of operational efficiency and the correction of market imperfections in the provision of education, PPPs are also a response to two important societal concerns: (i) how to implement the right to education, as mandated by the United Nations Commission on Human Rights, and (ii) how to reinforce parental rights and provide them with educational choices that enforce their social contract. The right to education is intended to enforce the full personal development of children, as it is through education that they are introduced to scientific discovery, the understanding of social values and norms, and the moral principles of their community. It is through education that a child “learns how to belong, grow, think critically, and transform the world” (Grau Callizo 2025).¹ As states become more secularized and heterogeneous, reinforcing parental rights becomes more difficult for the State, for simple reasons of bureaucratic complexity, leading to inefficiencies that can be corrected by allowing private providers to deliver public education more tailored to the needs of parents and their children, while complying with the basic curricula defined by the State. Hence, a framework of education as a human right, in combination with parental rights, can lead to the participation of private providers in the delivery of public education, and consequently to the implementation of PPPs.

¹ Although the USA does not recognize education as a Human Right because it is not so prescribed by the Constitution, in practice the right to education is implemented at the state level using the 10th and 14th Amendments as the basis for implementing this obligation. The 10th amendment gives states the powers to fund and deliver education, and the 14th gives states the power to enforce the equal protection laws regarding life, liberty and property. As a result, all 50 states have laws that require state and local governments to provide public education to all children of certain ages (Joetakk 2021; Johnson 2017).

This theoretical framework can be applied to PPPs in education, through contracts between government and private providers to deliver publicly funded schooling to a defined population, provided the contracts are structured around measurable results, with outcomes continuously assessed with respect to goals, operational arrangements, and the roles and responsibilities of each partner (Friedman 1955). The presence of private providers can also generate competitive pressure on public schools (Patrinos et al. 2009; Wolf et al. 2024), leading to favorable educational outcomes.

Measuring educational outcomes as proxies for quality can be difficult in some contexts, especially when important elements of quality are intangible or hard to observe (Fabre and Straub 2023). PPPs often grant greater managerial flexibility than traditional public schools, including autonomy over hiring, compensation, and work rules. Such flexibility can enable performance-based incentives that improve educational quality (Banerjee and Duflo 2006). However, when quality is difficult to observe, providers may emphasize easily measurable outcomes at the expense of less visible dimensions (Holmström and Milgrom 1991). Evidence shows that parents respond to school quality when information is transparent and comparable (Hastings and Weinstein 2008), but information constraints often limit effective choice (Burgess et al. 2015; Glazerman and Dotter 2017).

1.1 Impact of Publicly Funded School Choice Programs

More than 3 million students (6 percent of all students) attended a charter school in the United States in 2019 (NCES 2019). That is roughly 14 times the number of students who used a private school voucher – 217,910 nationwide in 2019-20 (EdChoice 2020). Another 17 percent attended a public school other than the one assigned (NCES 2020). Publicly funded school choice programs allow students to attend different types of schools financed with public resources. They include public schools outside of the student’s district, magnet schools, charter schools, and private schools. School choice programs are expected to improve educational equity and outcomes and generate competitive pressure on public schools. A body of evidence indicates that school choice policies can expand access – particularly for disadvantaged students – and may operate at lower cost than traditional public provision (Angrist et al. 2002, 2006; Patrinos 2013; Wolf et al. 2013; Gilraine et al 2025).

However, the empirical literature finds mixed results. Meta-analyses show that some programs improve learning outcomes while others produce limited or negative impacts (Shakeel et al. 2021; Jabbar et al. 2022). Program design – particularly accountability, funding, and eligibility rules – appears to condition these impacts. Evidence suggests that partnerships can expand access and improve outcomes at relatively low cost, particularly when targeted toward underserved populations (Baum 2018; Angel-Urdinola et al. 2025). Centralized and costly student application processes are hard to navigate for poor families, resulting in disproportionate benefits to more privileged students (Campos et al. 2025).

Critics argue that publicly funded private schooling may increase stratification, weaken public systems, or introduce uneven quality across providers (Ladd 2002; Burch et al. 2007; Verger 2012). This analysis therefore shifts from normative debates about privatization to a comparative

assessment of policy architecture; specifically, how competition, autonomy, accountability, and information affect education systems.

From the above findings, it is clear that if school choice is to be considered a legitimate approach for improving education quality and equity, and for engaging parents in the improvement of outcomes, institutional design must be treated as a central element of the analysis, not as an afterthought. Prior work has examined the relationship between private provision and student outcomes (Wolf et al. 2024) and has developed theoretical frameworks of educational pluralism and freedom (Berner 2024). Here, this discussion extended by incorporating governance design as a central analytic dimension, using a structured benchmarking framework. Rather than asking whether school choice works, the paper asks whether system performance is associated with the alignment and coherence of the institutional framework governing providers.

Section 2 develops the theoretical framework underlying this question; Section 3 introduces the comparative case methodology and benchmarking data; Section 4 presents the results, and Section 5 presents the conclusions.

2. Theoretical Framework

In theory, all families have school choice; in practice, choice is constrained by income, geography, and parental preferences. Such preferences, however, tend to eventually relate to budgetary constraints (Friedman 1955). This binding constraint limits the ability of families to opt out of public provision when seeking a school that fits their preferences. Another binding constraint is parent knowledge about public school performance and their power to affect it (Ferreira and Liang 2012). Hence, asymmetrical knowledge about a school is another relevant issue affecting parent choices, where private providers may know more than parents about the quality of the school.

PPPs operate within institutional environments in which governments seek to deliver education through diverse modes of provision. The relevant framework is the quasi-market model of public service delivery (Le Grand 1991), in which schools compete for students while governments regulate access, funding, and quality. Unlike private markets, quasi-markets require state intervention to address asymmetries in information, funding equity, and student readiness. In this setting, governments act as principals that delegate service provision to schools (agents). The objective is to *align* provider incentives with public objectives such as access, quality, and equity. However, these objectives may diverge from provider incentives, creating risks of cream-skimming, selective admissions, or mission drift.

Two core challenges arise: managing information asymmetry and correcting or mitigating incentive misalignment. Governments cannot fully observe school quality or effort, while providers may respond strategically to observable metrics. Effective PPP design, therefore, requires contracts, monitoring, regulatory oversight, and compliance, to reduce information asymmetries and align incentives.

Education systems differ in the financing and provision of services. Figure 2 illustrates these arrangements. This paper focuses on publicly funded private provision; that is, systems in which governments finance non-state providers to deliver compulsory education.

Figure 2: Finance and Provision of Education Services

		Provision	
		Private	Public
Finance	Private	Private schools Private universities Home schooling Tutoring	User fees Student loans
	Public	Vouchers Contract schools Charter schools Contracting out	Public schools Public universities

Source: Patrinos et al. 2009

To be effective, PPPs in education must align incentives associated with four institutional dimensions: *competition, autonomy, accountability, and parental information* (Baum et al 2014; Epple et al. 2017; Hanushek and Woessmann 2011; Le Grand 1991; Pritchett 2015). Competition promotes entry and innovation in supply; autonomy gives providers flexibility in resource allocation and pedagogy; accountability holds providers responsible for outcomes; and more symmetric information empowers parents to hold schools accountable and make informed choices.

The theoretical foundations of effective PPPs can be illustrated by extending the canonical model of public intervention in education to account for heterogeneity in individual learning types, asymmetric information, and perfect competition in the education market (Loury 1981; Becker and Tomes 1986; Galor and Zeira 1993). By definition, a model of PPPs in education already addresses the variations in learning types, as the inclusion of private providers automatically includes the tailoring of education provision to the different learning types found in the market.

First, consider a typical two-period model – simplifying Galor and Zeira’s (1993) overlapping generations model – with homogeneous individuals who begin life with an initial endowment, m , that they can either allocate to first period consumption, $c_{1,t}$, or invest in education, e_t , to receive higher earnings in the second period, for higher second period consumption, $c_{2,t}$. If an individual’s skill level, s_{t+1} , is determined by $s(e_t)$ and individuals receive wage $w_{s,t+1}$ for each unit of skill, the individual’s budget constraint is, in the absence of credit constraints, $c_{1,t} + c_{2,t+1} + e_t \leq m + w_{s,t+1}s(e_t)$. That is, the individual’s budget constraint is defined by the initial consumption plus the cost of education, which should be less than or equal to, the initial endowment plus the prospective gain from education. In equilibrium, they should be equal; that is:

$$\frac{\frac{\partial u(c_1^*, c_2^*)}{\partial c_{1,t}}}{\frac{\partial u(c_1^*, c_2^*)}{\partial c_{2,t+1}}} = 1 \quad (1)$$

$$w_s^* \frac{\partial s(e^*)}{\partial e_t} = 1 \quad (2)$$

where c_1^* , c_2^* , e^* and w_s^* are the steady state equilibrium values. In this model, an aggregate production function is assumed with aggregate skills as an input. In equilibrium, the wage for a unit of skill equals the marginal product of skills. Individuals are able to smooth consumption perfectly (equation 1) and invest in education to maximize earnings (equation 2). However, if individuals are credit constrained, then their first period consumption and education investment cannot exceed their initial endowment, $c_{1,t} + e_t \leq m$, and their second period consumption cannot exceed their future earnings, $c_{2,t+1} \leq w_{s,t+1}s(e_t)$. In this equilibrium,

$$\frac{\frac{\partial u(c_1^*, c_2^*)}{\partial c_{1,t}}}{\frac{\partial u(c_1^*, c_2^*)}{\partial c_{2,t+1}}} = w_s^* \frac{\partial s(e^*)}{\partial e_t} \quad (3)$$

In this credit-constrained equilibrium, education becomes a means of consumption smoothing and individuals equate the marginal rate of substitution of consumption between the two periods to the marginal rate of transformation through investing in education and future earnings. Using this framework, one can justify public intervention in education when individuals underinvest in their education because their initial endowment is too low and their credit constraint is binding. Following the model above, public intervention is justified when education investment is too low, $w_s^* \frac{\partial s(e^*)}{\partial e_t} > 1$, breaking the equalities of equations (1) and (2). The above model leads to public intervention as a means to maximize aggregate utility subject to an aggregate budget constraint. Such an intervention would require policies aimed at financing education to eliminate the credit constraint. For example, using taxation in period 1 and 2 of an individual's lifecycle would produce an optimal equilibrium, as described in equations (1) and (2).

Next, consider an extension of this canonical model where there is heterogeneity in individual learning. Consider a government intervention that provides education *in kind*, where the government decides how much to spend on education, and *how* to spend it. Let this particular type of *in-kind* education be defined by two parameters: the amount spent, e , and how it is spent, x . Next, let i denote an individual's learning type. Under these assumptions, an individual's skill acquisition depends not only on the amount spent, e , but also on how it is spent, x , to fit his/her learning type i . In other words, skill acquisition depends on the distance between x and i , defined as $(x - i)^2$.²

Skill acquisition is then expressed by the function $s((x - i)^2, e_t)$, indicating that individual learning would depend on how the money is spent in education, the individual's learning type i , and how much is spent on education by the government. The larger the distance between x and i , meaning the larger the discrepancy between what is spent on education and the learning type of the individual, the lower the level of skill acquisition, in which case $\frac{\partial s}{\partial (x-i)^2} < 0$, which also makes expenditure x less impactful on learning, with $\frac{\partial^2 s((x-i)^2, e_t)}{\partial (x-i)^2 \partial e_t} < 0$. Finally, individuals are

² This definition is intuitive. If $x = i$, then the distance is equal to 0. If $x > i$ then the distance is positive, and if $x < i$, the distance is negative. To prevent negative values of $(x-i)$ from canceling out the positive ones, then $(x-i)$ should be squared, to obtain only positive values.

considered heterogeneous in their learning type i , with i distributed by $f(i)$ which is assumed to be normal. If each individual's learning type i , is known, then education providers could tailor education delivery to match each individual's type by setting $x_i = i$, yielding $(x - i)^2 = 0$. This results in the optimal equilibrium defined with equation (1) above and:

$$w_s^* \frac{\partial s(0, e^*)}{\partial e_t} = 1 \quad (4)$$

which is analogous to equation (2). As before, this equilibrium exhibits perfect consumption smoothing and a level (and type) of education investment that maximizes future earnings; that is, Equations 1 and 4 represent the ideal outcome.

However, if information is perfectly *asymmetric* with only the individual knowing his or her own learning type, then a sub-optimal equilibrium arises. In choosing x , a government would rely on the distribution of learning types to maximize expected aggregate utility. When the distribution of learning types, $f(i)$, is symmetric, the optimal choice of education type, x , is the average, which, under the assumed normal distribution, implies an optimal choice of 0. In other words, it is rational for a government to provide education that is best suited for the *average* student when it does not know each individual's learning type. This equilibrium is characterized by equation (1) and:

$$w_s^* \frac{\partial s(i^2, e^*)}{\partial e_t} = 1 \quad (5)$$

Equation (5) is identical to equation (4) only for the average student, $i = 0$. However, for students with $(x - i)^2 \neq 0$, then $w_s^* \frac{\partial s(i^2, e^*)}{\partial e_t} > 1$ which would imply an underinvestment in education, lower earnings, and less consumption. The underinvestment is a result of individuals receiving a type of education that does not meet their needs, requiring more spending to offset the difference. The optimal equilibrium defined by equations (1) and (4) is not possible when information about individual learning types is perfectly *asymmetric*. If that is the case, then government provision of *in-kind* education results in a sub-optimal equilibrium, as defined by equations (1) and (5).

Now consider the publicly financed, privately provided case when the education market is perfectly competitive; that is, where private providers behave like small firms. In this case, government uses tax revenues to pay a p_t amount for each individual's education. In this market, a private provider j may offer one type of in-kind education that is dependent on how much is spent e_j and how it is spent, $x_{j,t}$. For simplicity, assume that in this publicly financed, privately provided model the price is fixed at p_t ; and individuals pay fees indirectly through taxes, and the government pays providers directly. In this market, an equilibrium outcome (optimal or not) still holds.

This perfectly competitive market is defined by these five characteristics: (1) individuals have complete information about the quality of each school; they know the initial combination of expenses and mode of delivery from each education provider $(e_{j,t}, x_{j,t})$; (2) individuals have choice; that is, they can choose a specific combination $(e_{j,t}, x_{j,t})$ from the set of all education providers, $j \in E$; (3) education providers are autonomous and can choose how much they spend

on education, $e_{j,t}$, and how, $x_{j,t}$; (4) there is free entry and exit of education providers into the market; and (5) education providers exhibit profit maximizing behavior. If the price is fixed at p_i , a provider would exhibit a cost-minimizing behavior, for equal results.

The result of perfect competition is twofold. First, for every learning type, i , there will be an education provider offering a type of education, $x_{j,t}$. In other words, there will be no market gaps, $\exists(e_{j,t}, x_{j,t}): x_{j,t} = i$. If there were such a gap, an entrepreneurial education provider could enter the market, offer education for that type, spend slightly less on education than the subsidized price, $e_{j,t} < p_t$, making a profit, while still attracting consumers of that specific type, i . For example, entrepreneurs were vital for the establishment of new schools in under-served areas in Pakistan (Barrera-Osorio et al 2022).

It must be noted that, if any of the five perfect competition conditions do not hold, then market gaps may exist. Also, if any education provider is making a profit, other providers would enter and compete. The result is the familiar zero-profit condition where $e_j = p$. In other words, education providers exhibit profit-maximizing behavior in that they respond to incentives to enter the market, but due to competition, profits are zero.

Under this publicly financed, privately provided equilibrium no market gaps should exist and individual i would always choose a provider offering $x_{j,t} = i$ resulting in $(x_{j,t} - i)^2 = 0$, and a market with zero profits, $e_{j,t} = p_t$. In effect, by choosing a price for education, p_t , the government is also choosing how much is spent on education for all individuals, e_t , and the level of individual skill acquisition $s(0, e_t)$. In equilibrium, equations (1) and (4) hold; the publicly financed, and the privately provided equilibrium is equivalent to the optimal equilibrium. *In summary, the theoretical need for publicly financed, privately provided education is based on an asymmetry of information that favors the individual and a perfectly competitive education market.*

What do these economic foundations mean for policy? In practice, markets rarely operate this cleanly, and policy intervention is needed to approximate the conditions of perfect competition. Information asymmetry cuts in both directions: individuals may know more than government in some areas, while government may know more than individuals in others. Parents, for instance, may have better information about their own children's learning needs and about local schools, while government may have a better sense of which pedagogical approaches actually shape instructional quality. For its part, government has a clear role in measuring learning outcomes and providing that information publicly, so that individuals can better evaluate providers.

School choice can also be limited in practice. Geography is one immediate limitation (Hotelling 1929). The provision of transportation, and regulation on non-refundable registration fees should help reinforce school choice. However, there are also non-pecuniary disincentives in changing schools, including drastic changes in a student's social life when they have to leave their old friends and face the uncertainty of making new ones. Free entry and exit to education markets can also be limited if there are economies of scale and large setup costs due to geography, social constraints, and other non-pecuniary factors. Finally, the concept of for-profit education provision is controversial, especially if the policy set up involves the use of public funds. At the same time, incentives are needed to ensure underserved locations or learning types are catered to. Overall,

education providers will need a clear return on investment to be willing to enter an underserved market. In theory, under normal accounting rules, a positive return on investment can be compatible with the zero-profit framework of a perfectly competitive market (Mas-Colell et al. 1995).

Within the above theoretical framework, government policies may foster the provision of information about education needs of individuals (by providing test scores and information on learning outcomes), and about the minimum requirements for education providers. In addition, government policies could help low-endowment families through targeted subsidies, such as vouchers and conditional cash transfers.

Building on this theoretical framework, the effectiveness of a PPP can be expressed in reduced form as:

$$U_i = f(M_i, A_i, Q_i, P_i) \quad (6)$$

where U_i is expected utility denoting system-level educational outcomes (attainment, graduation, achievement, or labor market returns); and M_i , A_i , Q_i , and P_i represent competition, autonomy, accountability, and information, the latter being necessary for reinforcing parental empowerment. All variables in the reduced form are inherent to the theoretical model outlined previously. This formulation is consistent with quasi-market theory, principal-agent models, and institutional complementarity, emphasizing that outcomes depend on the joint configuration of incentives rather than any single policy dimension.

3. Institutional Alignment, Institutional Coherence, and the Assessment of PPPs

Heuristically, the theoretical framework outlined in equations (1)-(6) can be used to assess the level of maturity of PPPs on the basis of two framing principles: (i) the degree of institutional alignment with a competitive market in education and (ii) institutional coherence, which assesses the degree to which the four components of the utility function complement each other. This offers a novel approach to assessing PPP maturity in education. It resembles, in spirit, the sector-comparison approach of Fabre and Straub (2023), whose comprehensive review of PPPs across infrastructure, education, and health summarizes sector characteristics — sunk costs, contractibility, innovation potential, and competition — along qualitative dimensions to explain variation in PPP suitability; notably, even their extensive review of the education-PPP literature contains no attempt to construct a formal maturity index. PPP market maturity has, separately, been studied as an institutional phenomenon in infrastructure sectors, where it is understood to depend on the development of trust, legitimacy, and capacity through the structuration of organizational fields (Casady et al. 2020), and where institutional variables such as regulatory frameworks and investment climate have been shown, using qualitative comparative methods, to drive changes in market maturity over time (Casady 2023).

Critical success factors for PPPs in the education sector have likewise been identified empirically, based on a systematic review of 21 studies across 12 countries (Sajida and Kusumasari 2023). However, no prior study has been found that derives PPP maturity dimensions directly from a formal

utility-theoretic model of the kind developed in equations (1)-(6), nor applies such a framework to the education sector specifically. By compressing the multiple variables affecting private sector engagement in education provision into two theoretically-grounded indicators, this approach offers a parsimonious, theory-derived alternative to the qualitative and empirically-assembled indicators used in existing PPP characterizations — thus responding directly to Fabre and Straub's (2023) call for more structural approaches to understanding PPP performance, in place of the reduced-form, poorly-identified cross-sectional studies that currently dominate the literature.

More detailed knowledge about the four dimensions of the education market introduced in the theoretical framework (competition, autonomy, accountability, and information) can be obtained from SABER indicators,³ which can then be combined into summary indices to assess cross-country patterns (George 2019; Jankauskas et al. 2023). The objective of this approach is to assess whether institutional configurations correspond systematically to observable outcome patterns (Honig and Hatch 2004; Smith and Joshi 2016). For each country, the four dimensions in equation (6) are combined into an institutional alignment index:

$$Alignment_i = M_i + A_i + Q_i + P_i \quad (7)$$

where higher values indicate stronger overall institutional development. Institutional coherence, which approximates internal balance across domains, is defined as:

$$Coherence_i = \max(M_i, A_i, Q_i, P_i) - \min(M_i, A_i, Q_i, P_i) \quad (8)$$

where lower values indicate greater balance across domains.

Empirically, equations (7) and (8) can be used to assess whether education systems with higher alignment and greater coherence exhibit higher performance outcomes. To that end, the analysis relies on structured comparative case analysis with policy measurement using the SABER benchmarking tool that assesses private sector engagement in education (Baum et al 2014). This assessment tool has been applied in more than 30 countries (Baum et al. 2018a; Peddada and Alhuthaifi 2021). Because the framework measures institutional rules rather than participation rates alone, it enables comparison across different organizational models of private provision.⁴ This assessment tool is shown in Appendix 1. The results of its application to the countries in this study are shown in Appendix 2.

3.1 Comparative Perspectives on Education Public-Private Partnerships

The analysis examines seven countries commonly identified as operating universal or near-universal publicly funded private schooling systems (Table 1). These systems represent the

³ SABER is an acronym for System Approach for Better Education Results, a World Bank initiative that developed different rubrics for assessing policies and programs in different components of education, such as Private Sector Engagement, Early Childhood Development, Education Management Information Systems, School Autonomy and Accountability, and nine other education components. <https://www.worldbank.org/en/topic/education/brief/systems-approach-for-better-education-results-saber>.

⁴ Cross-comparisons among countries and/or states within a country represent an initial phase of a broader benchmarking effort designed to generate comparable institutional scores for all 50 U.S. states and additional countries.

principal global variants of large-scale education PPP design (Carnoy 1998; Van Raemdonck and Maranto 2020; D’Agostino 2024; D’Agostino et al. 2024). The USA is considered separately as a decentralized multi-state system rather than a single national design.

Table 1: Universal School Choice Systems									
Country	Since	Cost as % of public	For-profit	Selective admissions	Religious affiliation	Tuition top-up	In publicly funded private %	Students served (million)	PISA**
Belgium	1958	100%	No	No	Yes	No	65	0.7	480
Canada	1968-2016	35-80%	No	Yes	Yes*	Yes	5	0.3	485
Chile	1981	100%	Yes	Yes	Yes	Yes	60	4	403
Ireland	1967	100%	No	No	Yes	No	95	1	480
Netherlands	1917	100%	No	Yes	Yes	No	95	1	483
Sweden	1992	~80%	Yes	No	Yes	No	25	1.1	464
USA	various	varies	Yes	Yes	Yes	Yes	2	1.2	463
*Not in Quebec; **PISA math score 2025									

The theoretical framework outlined in this section provides a lens for understanding why countries with similar aspirations for school choice arrive at markedly different outcomes. Comparing institutional configurations across seven countries illustrates how the degree of alignment across these four dimensions shapes both the character and the empirical effectiveness of education PPPs.

The Netherlands offers the most complete alignment of all four dimensions among mature choice systems. Freedom of education, enshrined in Article 23 of the Dutch Constitution, guarantees the right to establish schools along religious or pedagogical lines, and this constitutional foundation has produced a system in which 70 percent of students attend privately governed but publicly funded schools, making it one of the most extensive choice systems in the OECD. Competition is genuine rather than nominal: there are no catchment areas, funding follows the student, and private schools cannot charge fees that would restrict access (Ritzen et al. 1997). Autonomy is similarly robust, with school boards controlling curriculum, staffing, and pay. Accountability operates through a national Education Inspectorate that has published school quality ratings since 1998, and information asymmetry is directly addressed: media coverage of these ratings has been shown to measurably influence parental choice patterns (Koning and van der Wiel 2013). The empirical record is correspondingly positive, if modest in magnitude. Competition-driven improvements are in the range of 0.05-0.09 standard deviations, with instrumental variable estimates suggesting somewhat larger effects of 0.17-0.30 SDs (Noailly et al. 2012; Himmler 2009; Cabus and Cornelisz 2017; Patrinos 2013), though a propensity score-matched study found little to no effect, underscoring how estimated impacts remain sensitive to identification strategy even in a well-aligned system.

Sweden’s 1992 voucher reform represents a deliberate, policy-induced attempt to construct the same four-dimensional alignment achieved organically in the Netherlands. A uniform per-pupil grant follows students across municipal and independent providers, tuition is prohibited, and independent schools – including for-profit operators – compete for enrollment under national curricular standards enforced by the Swedish Schools Inspectorate (OECD 2015; Böhlmark and

Lindahl 2015). The distinguishing feature is that competition here operates through genuine provider entry rather than the network-based choice found in Belgium or the historically embedded pluralism of the Netherlands. The evidence, however, is more mixed than the institutional design might predict: public schools have improved in response to competitive pressure, yet voucher-attending upper-secondary students score slightly lower (-0.06 SD) on externally graded tests, and results on segregation and social cohesion remain contested (Heller-Sahlgren 2023; Hinnerich and Vlachos 2017; Sandström and Bergström 2005; Shafiq and Myers 2014; Yang Hansen and Gustafsson 2016). Sweden thus illustrates a case where strong institutional alignment does not guarantee unambiguous achievement gains, particularly once for-profit entry and market-driven segregation dynamics are introduced.

Belgium and Ireland represent an older model of publicly funded private provision, rooted in constitutional guarantees of educational freedom that predate the modern school choice movement. In Belgium, parents choose among school networks rather than among individually competing providers, funding parity and fee limits keep access largely income-neutral, and the linguistic Communities centrally define curricula and staffing requirements (OECD 2011; OECD 2023). Competition is therefore structurally muted relative to Sweden or the Netherlands - it exists through network selection rather than provider entry - yet the predictability of uniform rules across sectors appears to substitute for the incentive effects that open entry would otherwise provide. Consistent with this, once controls for context and equity are included, public and private schools in Belgium perform comparably (Cherchye et al. 2010). Ireland exhibits a related but more constrained pattern: nearly all schools are privately patroned but state-financed, with entry and expansion planned administratively rather than market-driven (Coolahan et al. 2012; OECD 2020; Eurydice 2023). Here the empirical picture cuts against the *choice improves outcomes* hypothesis: after controlling for enrollment effects, public schools were found to outperform private schools on average (Pfeffermann and Landsman 2011); a reminder that where private provision is the historical default rather than a competitive alternative, the theoretical logic of choice-driven improvement may not apply in the same way.

Canada occupies a middle position: provinces such as Alberta, British Columbia, and Quebec offer partial public grants to independent schools conditional on regulatory compliance, but schools may charge tuition and entry expansion remains administratively controlled (Bosetti and Gereluk 2016; OECD 2017). This institutional configuration nonetheless coincides with some of the more robust quasi-experimental estimates in the literature: competition effects of 0.06-0.08 SDs in Ontario, and considerably larger effects (0.12-0.36 SDs) associated with switching into private high schools in Quebec (Card et al. 2010; Lefebvre et al. 2011).

Chile's nationwide voucher system illustrates how competition and accountability can be present institutionally while equity outcomes still diverge sharply depending on complementary design choices. Public funding follows students to municipal or subsidized private schools, generating substantial entry and mobility, but co-payments and historically unrestricted student selection created uneven access across socioeconomic groups. The trajectory of Chilean evidence tracks the evolution of its regulatory design: early studies found no aggregate improvement in outcomes alongside rising stratification (Hsieh and Urquiola 2006; McEwan et al. 2008), while post-2008 reforms introducing weighted funding for disadvantaged students and admissions restrictions coincided with reduced inequality, narrowed achievement gaps, long-term wage benefits, and

more recent studies identifying positive learning effects (Murnane et al. 2017; Aguirre 2022; Bravo et al. 2010; Correa et al. 2021; Giaconi et al. 2022; Patrinos and Sakellariou 2011).

The USA stands apart as a decentralized policy laboratory rather than a unified institutional design, with eligibility rules, funding formulas, entry requirements, and information transparency varying substantially by state (EdChoice 2024). Participation has nonetheless scaled rapidly: by 2025, more than one million students were enrolled in publicly funded private school choice programs across 35 states, the District of Columbia, and Puerto Rico, with participation exceeding 10 percent of the K-12 population in Florida and Arizona, and a federal tax-credit scholarship program set to introduce a national funding stream beginning in 2027 (Wolf 2026). Consistent with this institutional heterogeneity, the empirical evidence is correspondingly mixed: negative short-term effects in Louisiana sit alongside positive long-term outcomes elsewhere, charter schools generally outperform other choice models, and competitive pressure on public schools shows modest positive effects (Abdulkadiroglu et al. 2018; Angrist et al. 2010; Chingos et al. 2025; Deming et al. 2014; Erickson et al. 2019, 2021; Figlio and Hart 2014; Wolf et al. 2013).

Taken together, and consistent with a synthesis of 60 studies across 18 countries yielding 247 estimates, PPPs tend to improve educational outcomes at lower cost than traditional public provision, with charter-school models showing the most consistent gains and voucher programs producing more heterogeneous results (Angel-Urdinola et al. 2025). The cross-country comparison suggests this heterogeneity is not random: it is broadly consistent with differences in how competition, autonomy, accountability, and information are jointly – rather than individually – aligned, with Chile’s reform trajectory and Sweden’s mixed record both illustrating that strong performance on any single institutional dimension is insufficient without complementary design across the others.

4. Results

The detailed descriptions of the different institutional arrangements for the participation of the private sector in the provision of education frame the results of applying the conceptual model for alignment and coherence. Given the small number of observations, the analysis does not estimate causal effects.

Based on equation (7), the score for *institutional alignment* is defined as the sum of the SABER indicator scores for competition, autonomy, accountability, and information. The sum of the SABER scores is classified into quartiles, where the top quartile is classified as *High*, and the lower quartiles are classified *Medium High*, *Medium*, and *Medium Low*, respectively.

Based on equation (8), *Institutional coherence* is defined by the gap between the maximum and minimum values of the SABER indicator scores. Hence, the gap values between the maximum and minimum values of the SABER are classified as follows:

- Gap = 0 and at least one dimension = 4 → *Coherent*
- Gap = 0 and no dimension = 4 → *Established*
- Gap = 1 → *Balanced*
- Gap = 1 and no dimension = 4: *Fragmented*
- Gap = 2 or more → *Fragmented*

The application of SABER scores to evaluate alignment and coherence yields results showing a clear division between systems in which the four institutional dimensions are jointly advanced, and systems in which one or more dimensions lag behind the others. These results are summarized in Table 2, with the numerical details shown in Appendixes 3-4.

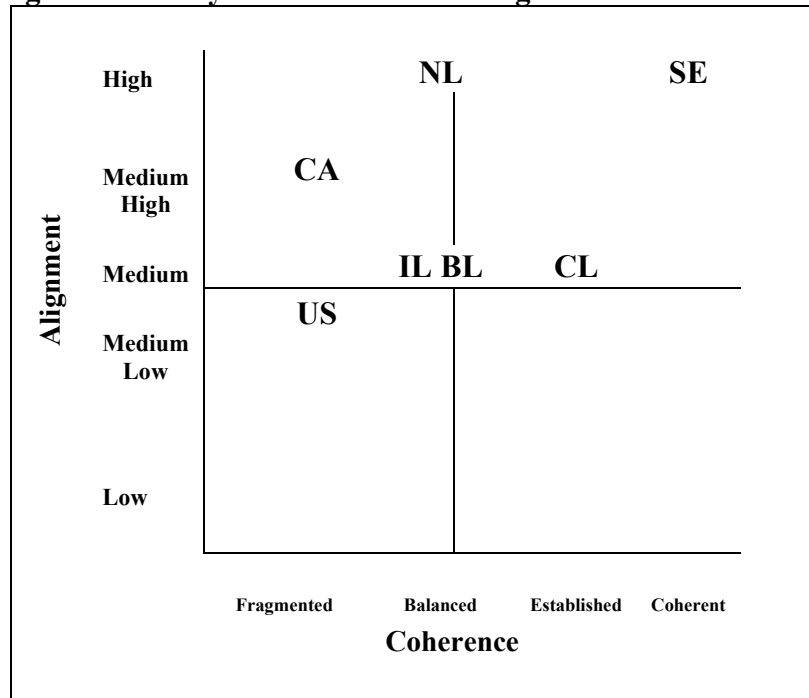
Table 2: SABER Institutional Alignment and Coherence System Outcomes

Country	Alignment Index	Alignment Score	Coherence Gap	Coherence Score
Belgium	13	Medium	1	Balanced
Canada	13	Medium-High	2	Fragmented
Chile	12	Medium	0	Established
Ireland	13	Medium	1	Balanced
Netherlands	15	High	1	Balanced
Sweden	16	High	0	Coherent
US	10	Medium-Low	1	Fragmented

In terms of *alignment*, the Netherlands and Sweden score the highest, followed by Canada with a medium-high rating. Belgium, Chile and Ireland are rated medium, and the USA is rated medium-low relative to others in this group of countries.

In terms of *coherence*, Sweden is the only country in the group with a rate of Coherent, and Chile, while it has a 0 value in the gap, is Established, since it does not have a score of 4 in any of the dimensions. Canada shows a higher level of dispersion across domains, resulting in its classification as Fragmented. The USA, with a gap of 1, is classified as Fragmented because it does not have a score of 4 in any of the four dimensions of competition, autonomy, accountability, and information. Figure 2 shows that the Netherlands and Sweden are better aligned and are institutionally more coherent than the other five countries. The USA is on the lower left quadrant, showing the effect of medium-low alignment and fragmented coherence.

Fig. 2. Summary of SABER-Based Alignment and Coherence



The specification of the equation for alignment is based on the premise that market competition is a precursor of educational performance, and also on the premise that better *alignment* should lead to increased learning. Hence, replacing the SABER Competition variable in the alignment equation with an index of test scores should produce similar results. Using numerical test scores is important for validating the theoretical model.

Using test scores in the equation for coherence is also important because a lower distance between the maximum and minimum values in the alignment scores indicates a higher degree of coherence. Classifying the range of PISA Math scores into an index where 1 represents a narrowest range – and the most coherence – and 4 represents the largest range – and the lowest coherence – yields a ranking of the seven countries in terms of coherence for the four dimensions of the model.

The results are remarkably similar in the case of alignment but show only a partial association in terms of institutional coherence. Using the PISA scores as a proxy for performance yield similar results to the SABER-based results with respect to Alignment. However, the PISA-based results for coherence are more conservative than the SABER-based results. However, but methods show enough consistency within a small sample of countries, to validate the theoretical model. The similarity in the alignment classifications provides a preliminary consistency check on that dimension of the framework, while the greater sensitivity of the coherence classifications indicates that this measure requires further validation, as shown in Appendixes 5-8 in more detail.

5 Conclusions

This paper develops a conceptual framework for assessing education public-private partnerships that shifts attention from the extent of private provision to the institutional architecture within

which publicly funded choice operates. The model identifies four complementary dimensions—competition, autonomy, accountability, and information—and derives two measures from them: alignment, capturing their overall level of development, and coherence, capturing the balance among them. The central implication is that these institutions should be considered jointly rather than in isolation.

The comparison of seven systems is broadly consistent with this framework. Sweden and the Netherlands exhibit the highest levels of institutional alignment, while the United States ranks lowest among the systems examined. The comparison also shows why alignment and coherence capture different features of institutional design: Sweden combines high alignment with coherence; Canada combines relatively high alignment with substantial imbalance across dimensions; and Chile is comparatively balanced, but at a lower overall level. Replacing the competition component with PISA mathematics outcomes produces broadly similar classifications for alignment, although less consistent results for coherence. The framework therefore appears most informative as a way of characterizing how the institutional components of education PPPs fit together.

The broader implication is that the relevant distinction is not simply between public and private provision, nor between more and less competition. Education PPPs operate within systems of institutions. Competition creates opportunities for entry and innovation; autonomy gives schools room to respond and experiment; accountability establishes expectations for performance; and information enables families to make meaningful choices. The contribution of the model is to bring these elements together within a common framework and to emphasize their complementarity. The relevant question for the design of education PPPs is therefore not simply whether school choice works, but under what institutional arrangements autonomy, accountability, competition, and information reinforce one another.

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Appendix 1: Policy Rubric for Assessing the State of PPPs in a Country

Policy Goal	Indicator	Latent*	Emerging	Established	Advanced
Competition	Admission		Schools allowed to apply selective admission criteria		
	Amount of government funding		Choice schools receive less per student than the per student amount received by public schools	Choice schools receive equivalent per student amount received by public schools	Publicly funded private schools receive per-student funding equal to public schools, with additional support for students with specific needs
	Timeliness of funding		Schools receive government funding at start of academic year	Schools receive funding at start of year; are aware of funding 3-6 months before start of year	Schools receive funding at start of year; are aware of funding 6+months before start of year
	Coverage				Recent increase in choice
Autonomy	Personnel recruitment & selection Personnel salaries Delivery curriculum Delivery class size		Teacher selection not made centrally	All decisions not made centrally Not restricted on class size	Schools set teacher salaries
Accountability	Quality assurance Assessment		Government sets minimum standards	Government or external agency carry out inspections; schools required to report as condition for funding Private schools must take part in mandatory national exams	Frequency of inspection is dependent on school need (risk-based)
Information	Transparency		Government provides information to parents on the quality of schooling		Government provides information to parents on the quality of schooling
	Parental Contributions		Parental choice is restricted by compulsory contributions	Parental choice is not restricted by compulsory contributions	Parental choice is not restricted by voluntary contributions

* Policy behind the indicator is not yet in place

Appendix 2: SABER PPP Benchmarking Results for Selected Countries

Competition	Autonomy	Accountability	Information
<i>Netherlands</i>			
Restriction on for-profit providers; No recent increase in schools	Full autonomy	Inspections are risk based; private schools must take part in state exams; data made available to parents; choice not hindered by parental contributions	Performance data made available to parents; choice is not hindered by parental contributions
<i>Chile</i>			
Secondary schools <i>were</i> able to select students based; schools not aware of funding until start of academic year; significant increase in choice schools	Schools restricted on their ability to set wages; curriculum includes only minimum content	Inspections based on need; schools report on use of funds as condition for funding; private schools take part in exams	Parents are able to access information on school quality from a variety of sources; compulsory contributions hinder choice
<i>Belgium*</i>			
Large government-dependent private sector present but public support conditional on compliance, accreditation criteria	Schools restricted on their ability to hire and fire	Private schools take part in exams, but the system is relatively new	Parents are able to access information on school quality; capped charges may hinder choice
<i>Ireland*</i>			
Regulated plural system not open entry; Entry/expansion operates through regulated recognition	Key HR levers centrally determined	Inspectorate conducts evaluations; Students take national examinations	School inspection reports published, Find a School tool; Voluntary contributions are sought in practice
<i>Sweden*</i>			
Universal funding follows the student; Independent schools funded equality at same per-pupil level as public, market entry and expansion of providers	Full autonomy	Inspectorate supervises all providers and can close low performing schools; National standardized tests apply equally to public and independent schools	National performance indicators and inspection public; Independent schools cannot charge tuition; funding fully covers compulsory education
<i>Canada*</i>			
Parents have choice but entry requires approval and funding is partial ; Regulatory approval limits open market entry	Full autonomy	Provincial ministries approve, inspect, and audit funded independent schools; Students participate in provincial standardized assessments	Provinces publish school results; Tuition is still charged because funding is partial

*Preliminary results only

Appendix 3: SABER Institutional Alignment and System Outcomes

Country	Competition	Autonomy	Accountability	Information	Alignment Index (sum)	Outcome Level
Belgium	3	3	4	3	13	Medium
Canada	3	4	4	2	13	Medium-High
Chile	3	3	3	3	12	Medium
Ireland	3	3	4	3	13	Medium
Netherlands	3	4	4	4	15	High
Sweden	4	4	4	4	16	High
US	2	3	2	3	10	Medium-Low

Appendix 4: SABER Institutional Coherence and System Outcomes

Country	Competition	Autonomy	Accountability	Information	Max	Min	Gap	System Type
Belgium	3	3	4	3	4	3	1	Balanced
Canada	3	4	4	2	4	2	2	Fragmented
Chile	3	3	3	3	3	3	0	Established
Ireland	3	3	4	3	4	3	1	Balanced
Netherlands	3	4	4	4	4	3	1	Balanced
Sweden	4	4	4	4	4	4	0	Coherent
US	2	3	2	3	3	2	1	Fragmented

Appendix 5. Ranking of PISA Math Scores in 2025 and their range

Country	PISA Math Score	PISA Index	Range 90 th -10 th Percentiles	Range Index
Belgium	480	2	258	3
Canada	485	4	256	3
Chile	403	1	199	4
Ireland	480	2	217	4
Netherlands	483	3	279	1
Sweden	464	2	258	3
USA	463	1	260	2

Source: Table I.B1.2a.3, OECD 2026

Appendix 6. Alignment using PISA Math Score as Proxy for Performance in Equation (7)

Country	PISA Index	Autonomy	Accountability	Information	Alignment Index (sum)	Outcome Level
Belgium	2	3	4	3	12	Medium
Canada	4	4	4	2	14	Medium High
Chile	1	3	3	3	10	Medium Low
Ireland	2	3	4	3	12	Medium
Netherlands	3	4	4	4	15	High
Sweden	2	4	4	4	14	Medium High
USA	1	3	2	3	9	Medium-Low

Appendix 7. Coherence using the spread between the 90th and 10th percentiles as an index in Equation (8)

Country	Range Index	Autonomy	Accountability	Information	Max	Min	Gap	System Type
Belgium	3	3	4	3	4	3	1	Balanced
Canada	3	4	4	2	4	2	2	Fragmented
Chile	4	3	3	3	4	3	1	Balanced
Ireland	4	3	4	3	4	3	1	Balanced
Netherlands	1	4	4	4	4	1	3	Fragmented
Sweden	3	4	4	4	4	3	1	Balanced
US	2	3	2	3	3	2	1	Fragmented

Gap = 0 and at least one dimension 4 is Coherent; Gap = 0 and no dimension 4: Established;

Gap = 1: Balanced; Gap = 1 and no dimension 4: Fragmented; Gap = 2+: Fragmented

Appendix 8. Results Using Different Indexes of Competition and Performance

Country	Alignment		Coherence	
	SABER Alignment	PISA Alignment	SABER Coherence	PISA Coherence
Belgium	Medium	Medium	Balanced	Balanced
Canada	Medium-High	Medium High	Fragmented	Fragmented
Chile	Medium	Medium Low	Established	Balanced
Ireland	Medium	Medium	Balanced	Balanced
Netherlands	High	High	Balanced	Fragmented
Sweden	High	Medium High	Coherent	Balanced
USA	Medium-Low	Medium-Low	Fragmented	Fragmented