Legislating Transit "Coopetition"

Privatization and Planning Devolution in Germany

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Market liberalization is often heralded as a solution for unprofitable public services; however, such liberalization can result in competitive practices that harm service quality, particularly for public transit. Germany experienced this detrimental competition when its transit privatization initially led to operators' instituting business practices designed to keep riders on their portion of the network and degrading the overall user experience and driving down systemwide ridership and revenue. To repair the system fragmentation and revive their profits, the operators banded together in cooperative regional transportation alliances known as *Verkehrsverbünde.* Composed of both public and private transit providers as well as local authorities, Verkehrsverbünde coordinate transit planning, operations, and fare structures to provide customers with a unified, accessible, and efficient transportation system. From the inception of the first Verkehrsverbund in 1965 through the early 1990s, 11 of Germany's largest metropolitan areas adopted this model and realized increases in ridership and revenue. Although the benefits of the Verkehrsverbund model have been considered elsewhere, the critical role of Germany's evolving legal framework in encouraging Verkehrsverbünde has not been explored. This research finds that federal legislation passed in 1993 provided fertile ground for such cooperative competition—or "coopetition"—to flourish. The legislation both advanced transit privatization and devolved planning, financing, and administrative responsibilities to state governments. In response, German states actively created new alliances to more than quintuple the number of Verkehrsverbünde. Today nearly all public transportation operations in Germany are coordinated through Verkehrsverbünde, which contribute immensely to the systems' cost-effectiveness and consumer appeal.

The late 20th century privatization of public utilities in Western Europe created conflict between the competitive nature of private service providers and the need for convenient, affordable public services. This tension was particularly acute for transit operations, which require a coordinated network to thrive. The influx of private transportation providers competing for the same passengers created a fractured public transit system as providers worked against the easy transfer from the transit lines they operated to those of their rivals. Such competition made the transit system difficult for customers to navigate and resulted in increased fares to compensate for decreased ridership—a classic and vicious cycle. In Germany, the model of the *Verkehrsverbund* (plural: *Verkehrsverbünde*)—a regional transportation alliance—demonstrates one highly successful solution to liberalization that integrates the benefits of privatization while maintaining the affordability and convenience of public services. The concept of the Verkehrsverbund follows the idea of "coopetition"—or cooperative competition—in which businesses emphasize cooperation with their competitors as a means to greater success (*1*).

Although the operational benefits of the Verkehrsverbund have been presented in the literature (*2*; *3*; *4*, p. 10; *5*; *6*, p. 7; *7*, p. 12; *8*, p. 11), the legislative framework that encourages the adoption of this unique "co-opetive" model has not been explored. This study fills that research gap by examining the evolution of the key laws that support the proliferation of Verkehrsverbünde in Germany. This examination considers two time periods: first, the prereform legal regime that provided the basis for public support of transit and second, the reform legislation passed between 1993 and 1996 that promoted private-sector engagement in public transportation while devolving transit responsibility to state governments. The analysis suggests that the market liberalization and political devolution advanced the creation of Verkehrsverbünde precisely because the Verkehrsverbund model naturally incorporates private engagement and local responsibility.

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MARKET LIBERALIZATION AND PUBLIC TRANSPORTATION

Since the latter half of the 20th century, market liberalization has been touted as a means to create a more nimble and efficient marketplace for public utilities—including transit service. The benefits of opening the public transportation sector to competition are thought to include lower costs, improved quality of services, and greater innovation (*9*). However, unrestricted private enterprise can conflict with the vital noninfrastructural components of transit services, such as the robustness and seamlessness of the network. For example, a private transit operator may rationally choose to run only the most profitable bus lines—a decision that might leave many citizens without access to public transit. Conversely, if private enterprise becomes too tightly regulated in the name of protecting public values, the benefits of adaptability and efficiency may also be constrained. By entrusting the provision of public transit to private companies, which are not bound to the same public ethics as the government but which are typically able to introduce greater efficiency and cost reductions, the tension between safeguarding public values while maximizing efficiency comes to the forefront (*10*).

In the wake of late 20th century market liberalization, a number of different approaches to privatizing public transport emerged. Two examples of public transit liberalization, in England and Sweden, illustrate generally successful models for integrating private companies into public service. After initial difficulty managing transit privatization and deregulation, both countries created regional transit authorities, though in neither country do the authorities coordinate all efforts of service providers as thoroughly as in Germany. Sweden chose to heighten local control and contract out services; this choice resulted in competition over contracts but did not engage the private sector actively in meeting the needs of users. In contrast, England tried to fully privatize service to let any qualified operator enter the market; this attempt had the effect of allowing private operators to plan the commercially viable network routes. In the middle ground of privatization and deregulation, Germany's approach to coopetition results in both public cost savings and market responsiveness.

In Sweden, a series of reform regulations in the 1970s and 1980s transformed the public transportation landscape. First, regional transit authorities were created, coalescing responsibility for managing regional services in county public transport authorities (*11*). Although competitive tendering of public services was not an explicit condition of legislation creating the local authorities, decentralization of the transit authority had the secondary effect of making tendering a more viable option, emphasized by the abolition of exclusive service licenses in 1989 (*11–13*). Stability and quality may take precedence over minimal costs when contracts are tendered, with the result that the opportunity exists for negotiation of routes or timetables between county public transport authorities and operators, and the final contracts include strict qualitative and quantitative terms (*14*). Overall, deregulation in Sweden led to tight regional control over public transit, often leading to more competition in the service contract market.

In England, bus reform in the 1970s enabled private firms to enter the marketplace with no restrictions on fare setting or the time or duration of entry as long as the routes were profitable. Also, local governments were newly restricted from providing subsidies for services except those that were "impossible to provide commercially" (*15*). Consequently, many private firms entered the marketplace, but a lack of robust cooperation among service providers left different companies working independently to earn revenue. The widely held assumption that transportation newly run by private firms would not require as much subsidization as publicly operated transit led to major cuts in subsidy allotments in the years leading up to deregulation. In some cases, the cuts were as deep as 47% (*16*). Such subsidy cuts led immediately to an increased cost for users at the fare box as the result of service providers' attempt to reclaim revenue, which in turn contributed to increased ridership loss and decreased revenue.

In contrast to the models in Sweden and England, the Verkehrsverbund model (adopted by the German-speaking Switzerland and Austria in addition to Germany) fosters cooperation between service providers competing for passengers—"coopetition." By emphasizing cooperation, the Verkehrsverbund model manages to overcome the pitfalls of unbridled competition. Though market liberalization aims to increase efficiency by introducing more players into the marketplace, unfettered competition requires discouraging customers from using competitors' services. This area is where coopetition comes in. Through increased cooperation instead of merely a butting of heads, companies can actually increase their revenue. In the case of public transit, when the complementary services of different modes and service lines work cooperatively, the entire transit system becomes more easily navigable and thereby attracts more customers and increases all participants' revenue. Coopetition provides the crucial balance between ease of use in a complex system like public transportation and the potential for efficiency generated by more service providers in the marketplace.

The following examination of the relationship created by the Verkehrsverbund model between competitors and the legal framework that supports it provides a look at one successful solution to the fragmentation of public transit that accompanies market liberalization.

PRIVATE COMPETITION STALLS PUBLIC SERVICE

In Germany, the federal government is responsible for determining the overarching transportation strategy, and the 16 constituent states handle the logistics of planning, implementation, and management for most transportation projects. Though German intercity rail has long been dominated by the state monopoly, intracity transportation services employed a blend of public and private service providers well before liberalization became the standard market protocol in the late 20th century. The mix of public and private actors in Germany provided experience integrating private operators into a public system long before the European Union's push for market liberalization in the 1990s. Hamburg, as a metropolis with longstanding private involvement in public transportation, provides a case study into the way in which a Verkehrsverbund can resolve the tension between private competitors and a need for public cohesion and accessibility.

By 1965, the Hamburg public transportation system included suburban rail, subways, trams, and buses, most of which were operated by independent transportation companies (*7,* p. 12). By focusing solely on their own portion of the transportation system, these independent companies made public transit less convenient for potential customers. Service providers competed to keep passengers within their own networks as much as possible (in part by making transfers difficult and inconvenient), ran separate fare structures with separate tickets, and offered concessionary fares to make their own networks more attractive. Hamburg's multimodal transit system became increasingly disjointed—sometimes riders needed seven different tickets just to cross the city—until the continued decline of ridership and revenue prompted the unification of transit providers under the *Hamburger Verkehrsverbund* (*7,* p. 12) The initial impetus for a Verkehrsverbund was two-pronged: Hamburg's increase in car ownership reduced public transit ridership, and the reaction of the city's public and private transportation firms acting in their own interests crowded and confused public transit service and further shrunk ridership and revenue.

The Hamburger Verkehrsverbund quickly proved to be a useful model for synchronizing separate transportation providers and for increasing ridership in the face of increased automobile use and suburbanization (*2*). Consequently, a number of other German regions (Figure 1) adopted Verkehrsverbünde of their own, including the major urban centers of Hannover in 1970, Munich in 1972, Frankfurt am Main in 1974, Stuttgart in 1978, Würzburg in 1982, and Berlin in 1984 (*2*), as well as the Rhein–Ruhr region composed of a polycentric network of smaller cities. This last example illustrates the malleability and broad application of the Verkehrsverbund structure.

SOLUTION: VERKEHRSVERBÜNDE

The Verkehrsverbund, as a practical answer to the problems engendered by competition among public and private service providers, is an elegant and flexible solution. An independent legal entity, the Verkehrsverbund is composed of both public- and private-sector transit operators and the local transportation authority. The details of authority within the Verkehrsverbund vary, but all include elements of the government and service providers. Stone notes that the benefit

FIGURE 1 Early adopters of Verkehrsverbünde.

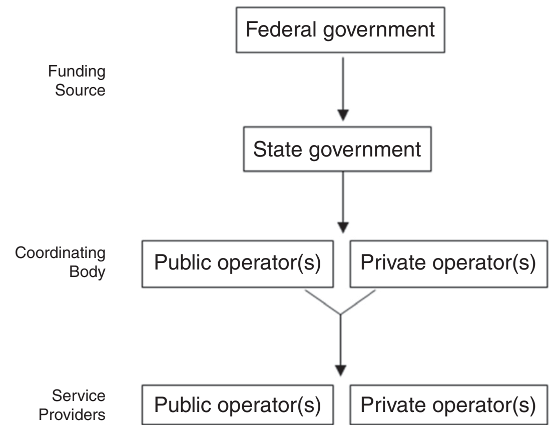

FIGURE 2 Basic structure of company alliance Verkehrsverbund.

of these alliances is their ability to enable formal agreements between operators to set fares, distribute revenues, and establish coordinated timetables (*17*). Conceived in the face of declining profitability and chaotic service in Hamburg in 1965, the Verkehrsverbund model was introduced as a way to encourage individual transit firms to engage in cooperative planning instead of directly competing with each other and thereby streamline the public transportation experience and consequently attract greater ridership.

By collecting all disparate modes and companies of public transportation under one umbrella, Verkehrsverbünde have been able to streamline transit service in three critical areas: fares, tickets, and timetables. One fare, in addition to reducing the cost of service, makes transfers simpler; one ticket is the necessary consequence of having a single, unified fare structure and enables customers to travel easily within a region; and one synchronized timetable allows passengers to schedule routes across modes and service providers. In addition to these improvements, Verkehrsverbünde also coordinate—both physically and temporally—transit stops and stations and thereby streamline transfers and make public transit a more convenient transportation option. The benefits engendered by the Verkehrsverbünde integration extend beyond the passenger's immediate experience: more accessibility for passengers has led to higher ridership, which makes transit services more efficient per passenger kilometer traveled. Consequently, government subsidies are used more effectively, and public transportation retains—or gains—a larger percentage of the modal split.

In the earliest iterations of the Verkehrsverbund model, the organizations followed a structure known as the "company alliance," in which representatives from member firms collaborate on developing timetables, fare structures, and marketing plans for the Verkehrsverbund (Figure 2). The public authorities responsible for transportation in the corresponding area—which may be municipal government, regional, or state, depending on location—engage with the Verkehrsverbund regularly to ensure adherence to the area transportation and land use plans but are not members and typically do not sit on the board. The local authorities manage disbursement for operating subsidies and ensure adherence to regional transportation plans, and the federal administration processes subsidies for infrastructure investment and fare costs for disabled, elderly, and student passengers (*3*).

In the years leading up to transportation reform, some long-standing company alliance Verkehrsverbünde shifted to an alliance structure known as an "authority alliance." In an authority alliance, the local government entity responsible for transportation leads the Verkehrsverbund, taking the active role in shaping alliance policy and coordinating among the service provider members (Figure 3). Subsidy disbursement, fare and route planning, and marketing coordination are all initiated by the local authorities. Most Verkehrsverbünde created after transportation reform follow this structure in order to fulfill the mandate of regionalization, which requires the creation of regional transportation authorities.

LEGISLATION

Since the concept's initial appearance in Hamburg, Verkehrsverbünde have grown to encompass nearly all transit providers in Germany: as of 2010, 90% of all public transportation rides were provided by Verkehrsverbünde (*8,* p. 11). However, the bulk of this growth cannot be attributed to the success of the Verkehrsverbund model alone: rather, a series of legislative efforts passed in 1993, often collectively referred to as "rail reform" or "transportation reform," encouraged an increase in both private market participation and coordination among service providers. Most critically, the reform both mandated that all service operations that were not financially self-sufficient ("cost-covering") must be contracted via competitive tendering and shifted administrative responsibility for transit subsidies from federal to state authorities. The consequences of the reform were, first, a pronounced entrance of private operators into the transit

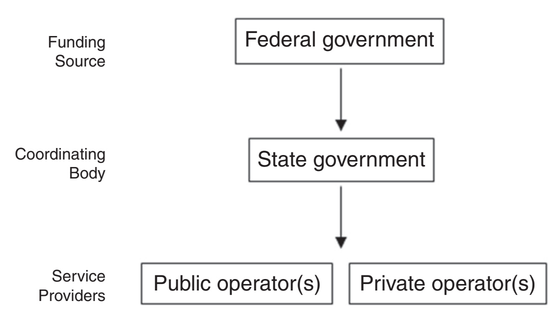

FIGURE 3 Basic structure of authority alliance Verkehrsverbund.

marketplace and, second, the widespread creation of regional transit administrative bodies to perform the new administrative duties required of the states. These new administrative bodies were created with the Verkehrsverbund model.

Public transportation in Germany can be divided into two major time periods: the eras before and after transportation reform. The passage of transportation reform in 1993 occurred immediately after the creation of the European Union and German reunification. Before reunification, transit services were by and large provided by state companies. In East Germany, the state-owned *Deutsche Reichsbahn* was the sole operator of the rail network, including its services and infrastructure. The state railway company in West Germany, Deutsche Bundesbahn, was the primary operator of the intercity rail network and owned the majority of intercity rail infrastructure, though a small number private firms also provided transportation services (*18*). Given that service in most areas of the country was still by and large provided by state-run entities, Verkehrsverbünde were organized only in those metropolitan areas dense enough to have a significant private presence, often of bus or tram operators. Because of the lack of private operators in smaller cities and towns, there was little reason to begin the administrative and financial task of creating a Verkehrsverbund until legislation provided that financial and administrative push.

Before Reform: 1951 Through 1993

Before transportation reform, transit was regulated primarily at the federal level, with both federal and state governments handling funding and elements of transportation planning and maintenance. Intercity rail was run entirely by the state monopoly. Public entities provided the bulk of intracity transit, but a number of private firms participated in the market as well, though there was relatively little regulation around the latter. The transit laws before reform provided a solid bedrock for the later regulation. As shown in Table 1, the basic transportation legislation introduced a funding structure and distinction between local and long-distance rail that provided starting points for later liberalization and regionalization.

Enacted in 1951, the General Railway Act (*Allgemeines Eisenbahngesetz,* or AEG) formed the foundation for public transportation regulation. The initial incarnation of the law served primarily to determine two types of transport service—either commercial or "in the public interest"—and established a distinction between local public rail and long-distance rail, a distinction that gains importance in the examination of transit subsidies (*19*).

As with the logistically focused AEG, the foundation of transportation funding in Germany was in place well before the reform of 1993. The Municipal Transport Financing Act (*Gemeindeverkehrsfinanzierungsgesetz,* or GVFG), enacted in 1971, provides the basis for transit funding. The GVFG allocated the revenue from petroleum taxes to transportation infrastructure investments, with significant funds earmarked for public transportation infrastructure. Updates to the law in 1987 and 1992 enabled the distribution of revenue to bus and train rolling stock and shifted much of the responsibility for subsidy distribution from the federal governments to the state governments, though they remained funded by federal taxes (*22*). In addition to funding for infrastructure, the federal government subsidized discounted fare cards for students, the elderly, and disabled people under the Passenger Transportation Act (*Personenbeförderungsgesetz,* or PBefG) of 1961 (*23*).

Reform: 1993 Through 1996

In the early 1990s, a host of conditions led to a call for transportation reform, not least among them a desire on the part of the state and federal governments to make transit more efficient. Across the country, much as in the late 1950s, public transportation deficits were growing along with the demand for subsidies, even though ridership had increased (*7,* p. 12). Further, the reunification of Germany in 1990 necessitated the integration of two rail systems that had been disconnected for 45 years, and the move toward market liberalization mandated by the fledgling European Union required a shift toward a more competitive marketplace.

A number of the important components of transportation reform were already codified in law, but amendments passed in 1993 brought preexisting legislation into alignment with the new goals of regionalization and market liberalization. In fact, the legal package of transportation reform included alterations to the German constitution, five new laws, and amendments to more than 130 preexisting laws and regulations (see Table 2 for the laws most important to the creation of Verkehrsverbünde) (*24*). The federal commission on state rail (*Regierungskommission Bundesbahn*), formed in 1989, targeted the pressure points in Germany's transportation system to be addressed by federal transit reform (*25*). The commission decided to decentralize the role of the federal government in transportation by disassembling the federal rail monopoly on infrastructure, shifting funding and administrative transportation duties to state governments, and mandating that all non-cost-covering service contracts be put up for public bidding. The goal of such reform was to make the market more accessible to private firms and to devolve the responsibility for subsidies to a more local level, where such funds tend to be allocated more efficiently (*3*).

Critically, the legislative acts of 1993 encouraged the restructuring of the traditional Verkehrsverbund model. Instead of a conglomeration of transportation operators coordinating services, fares, and marketing efforts, the concept of a Verkehrsverbund now prominently features regional or municipal authorities on their boards in a mixed

TABLE 1 Prereform Regulatory Framework for Public Transportation in Germany (*3, 8, 19–21*)

Legislation	Year	Key Elements
General Railway Act (*Allgemeines Eisenbahngesetz,* AEG)	1951	Defined local rail traffic as that which is undertaken primarily to serve urban, suburban, or regional demand—when the majority of trips taken on these services are shorter than 50 km or 1 h of total travel time.
Passenger Transportation Act (*Personenbeförderungsgesetz,* PBefG)	1961	Effective starting in 1964, regulates public transportation of passengers and covers all public transit, excluding intercity trains. Creates federal subsidies by way of discounted fares for students, the elderly, and disabled people.
Municipal Transport Financing Act (*Gemeindeverkehrsfinanzierungsgesetz,* GVFG)	1971	Earmarked revenue from mineral–oil tax for public transportation, initially only for infrastructure, but later included funding for bus (1987) and rail rolling stock (1992). Expires end of 2019.

TABLE 2 Reform Regulatory Framework for Public Transportation in Germany (*6, 8, 18–20, 26*)

Legislation	Year	Key Elements
Regionalization Act (*Regionalisierungsgesetz,* RegG)	1993	Starting in 1996, shifted authority for functions and financing of public transportation from federal to state government; funds distributed to states by federal government. Funds earmarked for public transit, disbursed by the state but funded by the federal government—"compensation" for regionalization of rail services. States usually delegate disbursement to transportation associations or authorities. Funds primarily fund transport services and rarely infrastructure investment.
Railway Reorganization Act (*Eisenbahnneuordnungsgesetz,* ENeuOG)	1993	Amended the General Railway Act and made it the foundation for regional public passenger transportation. Amended the Passenger Transportation Act and made it the foundation for public passenger transportation, broadly. Begins to open market to privatization in two major ways: 1. Public companies (Deutsche Bundesbahn and subsidiaries) that run public transportation services must now make their infrastructure (network, tracks) available to private competitors. 2. Services that are not cost-covering must be put up for bids for contract.
Municipal Transport Financing and Decentralization Act (*Entflechtungsgesetz,* EntflG)	2007	Replaced the GVFG and provides €1.3 billion a year from the federal budget to the states for "investments for the improvement of transportation facilities," from 2007 until its expiration in 2019.

alliance of companies and government or is totally controlled by the local government in an authority alliance (*8,* p. 11). As a result, regional authorities are no longer only responsible for local subsidy disbursement and transit planning. They also manage federal subsidy disbursement and—depending on the type of alliance—control fare structures, timetables, and marketing. The effect of transportation reform is starkly visible in the growth rate of Verkehrsverbünde after 1993, illustrated in Figure 4. By encouraging the introduction of private firms into the market and mandating the creation of regional transit organizations, Germany's transportation reform ushered in Verkehrsverbünde across the country.

Passed in 1993 as a modification of the AEG, the Railway Reorganization Act (*Eisenbahnneuordnungsgesetz,* or ENeuOG) was the first and most critical step toward market liberalization in transportation; the ENeuOG mandated that the state-owned rail infrastructure be accessible to private transit operators. In effect, the role of the ENeuOG has been to initiate and define rail liberalization: the laws categorize different components of Germany's transportation environment (e.g., long-distance versus short-distance rail) and opened the market to private forces through the increased access to infrastructure and enabled private companies to compete for contracts. The other elements of the rail reform significant for public transit further increase private access to service opportunities and determine the funding structure for public transportation operations and infrastructure (*27*).

Strengthening the system of accessibility created in the ENeuOG, an amendment to PBefG forced all service contracts "in the public interest" that were not entirely cost-covering to be open for public tender (*26*). Notably, the German practice of "cross subsidization"—using the revenue from more profitable public utilities, like energy, to cover the costs of less profitable utilities, like public transit—means that most transit contracts can be considered cost-covering and so are not required to be tendered. However, the PBefG amendment did result in an increase in private service providers by giving local authorities the option to award contracts via competitive tendering; this change rendered the cooperative benefits of *Verkehrsverbünde* more attractive for all regions.

The Regionalization Act (*Regionalisierungsgesetz,* or RegG) of 1993 directly encouraged the creation of Verkehrsverbünde, which had proved their value as a method for balancing the interests of public services with those of private actors—a particularly important quality given the market liberalization emphasized in the amended PBefG. The RegG decentralized the administrative, planning, and financing functions of public urban transportation and shifted all responsibility from the federal government to the states, though the funds are still raised by the federal government. Indeed, the primary goal of the RegG was to combine the task management components of public transit (planning and organization) with cost management and financing (*6,* p. 7). In response to this

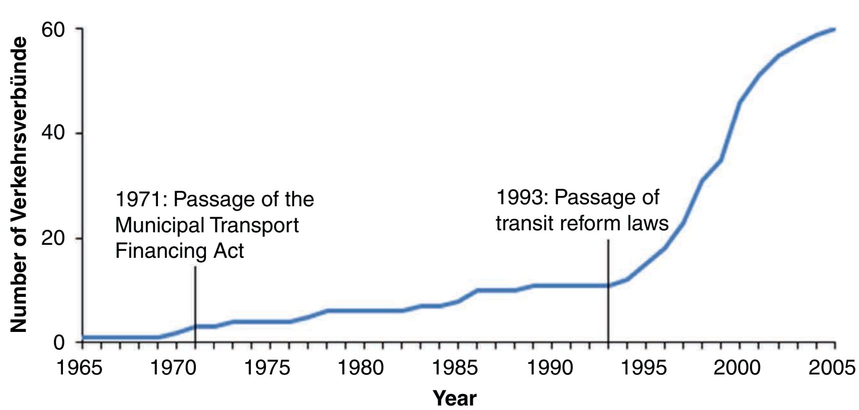

FIGURE 4 Growth in German Verkehrsverbünde, 1965 to 2005 (*8*).

mandate, most states either restructured preexisting Verkehrsverbünde from company alliances to authority alliances or created new Verkehrsverbünde (as authority alliances) to handle the influx of responsibilities (*22*). Table 3 illustrates where the primary shifts in responsibility appeared after transportation reform.

In a continuation of the updates to the GVFG, the *Entflechtungsgesetz* (Municipal Transport Financing and Decentralization Act, or EntflG), enacted in 2007, took over funding responsibilities from the GVFG and further cemented the responsibility of state authorities in transportation financing. The EntflG reconfigured the state programs under the GVFG and shifted partial responsibility for administration to the state level (*29,* p. 2098 and p. 2102). Under the current EntflG, states receive a grant from the federal government of €1.3 billion, which is proportionally distributed among the states, primarily on the basis of their share of registered vehicles (*19*).

Fundamentally, the greatest encouragement of Verkehrsverbünde comes from the regionalization provisions of Germany's transit reform. The proven benefits of Verkehrsverbünde—the increased ridership, efficiency, and revenue—were not sufficient incentive to create such alliances outside of the larger metropolises, since the effort required to create a local alliance was considered less viable for smaller or less dense regions with fewer transit passengers (*8,* p. 11). However, with the transportation legislation reform, new administrative agencies at the local and municipal levels are required to partake in planning, administration, and financing. This requirement spurred the creation of regional transit authorities subsidized by the federal government, which adopted the Verkehrsverbund model—a testament to its proven efficacy for coordinating among public and private operators. As was shown in Figures 1 and 2, the elemental structure of the Verkehrsverbund model remained the same: funding and planning from the federal and local governments are passed through an alliance body, which coordinates administration and operations for members.

After Reform: 1996 to the Present

Market liberalization appeared in Germany in the early 1990s as a solution to declining ridership and increased costs in public transportation caused by inefficiencies in transit service and operations. However, as Germany had experienced before in cities like Hamburg, service competition without coordination quickly becomes inefficient. In its initial form, the Verkehrsverbund was an independent legal entity through which a number of private and public operators formed an alliance to coordinate their planning, marketing, and service efforts. In the wake of the 1993 transportation reform, however, the structure shifted toward alliances headed by regional authorities, or a combination of regional authorities and service providers; this structure was a consequence of the shift of administrative and financial responsibility from the federal to state and local levels of government.

Given that the Verkehrsverbund had already proved itself as a successful and efficient coordinating body across multiple major metropolitan areas, this structure was embraced to serve in the administrative and financial role for state and local governments, as required by the RegG's mandate that state governments plan and administer subsidies previously handled by the federal government (*30*). This regionalization effectively forced the creation of Verkehrsverbünde at regional levels across Germany as most states authorized regional or local authorities to manage their new responsibilities (*19*). A number of these authorities were created through the restructuring of preexisting Verkehrsverbünde. Instead of being led by company heads (as was the case in the original company alliance), the Verkehrsverbünde now either split the administration of alliance companies between regional authorities and transit providers or are headed totally by local authorities in authority alliances (*8,* p. 11). The necessity of the Verkehrsverbund model vis-à-vis transportation planning, management, and financing—especially with regard to subsidy disbursement—is reflected in the explosive growth of Verkehrsverbünde between the passage of transportation

TABLE 3 Changing Role of Government in Transportation Administration Due to Legal Reform (*4, 6, 19, 28*)

Before Reform	After Reform
Subsidies	
State and regional governments funded and disbursed subsidies for transit operating costs. Federal government funded and disbursed subsidies for capital–infrastructure investments and for disabled–elderly–student fare discounts. State-owned transit providers receive "cross subsidization": subsidies from profit of other utilities, such as energy. Federal subsidies (from GVFG) are restricted to programs integrated into a region's land use planning, as determined by the state.	State governments (or regional authorities to which they delegate) fund and disburse subsidies for transit operating costs and administer disbursement of federal funds for capital–infrastructure investments and disabled–elderly–student fare discounts. State-owned transit providers receive "cross subsidization" where utilities remain in public hands; any contracts not covered by these cross subsidies are put out for public tender.
Planning	
Federal government determines overall framework and policy structure of transportation planning for country, but task of planning is delegated to regional authorities. Regional authorities—at state, regional, or municipal level—carry out planning process, while operational components are left to service provider–led Verkehrsverbünde.	Federal government determines overall framework and policy structure to enable consistency across country; task of planning is delegated to regional authorities. Regional authorities responsible for logistics of planning are most often (reformed, public authority–led) Verkehrsverbünde, which are then able to integrate operational considerations (e.g., fare structure) into their planning.
Transit Provision	
Regional authorities provision services required primarily from public providers but occasionally from private firms in denser areas in which they operate.	Regional authorities procure transit services from operators, as before, but now any entrepreneurial activity by alliance members must be approved by the responsible authorities that head the alliance. Regional authorities in mixed and responsible authorities Verkehrsverbund alliances determine and tender service contracts with member companies.

reform in 1993 and its enactment in 1996. Figure 4 illustrates this steep increase, in which the number of Verkehrsverbünde nearly tripled between 1993 and 1998, from 11 to 31 countrywide. Though the internal structure of the Verkehrsverbünde has been amended over time, the cooperative principles in which they are grounded—strengthened by federal legislation—have kept public transportation ridership levels strong and subsidy requirements stable, providing an exemplary model of coopetition among public and private service providers.

CONCLUSION

The Verkehrsverbund model provides a useful example of how coopetition between public and private operators can improve transit service. Such positive outcomes are not inevitable and may need some legal nudging to be realized. This study traces how Germany's legislative efforts to reform transportation policy by encouraging privatization and devolving responsibility fostered the proliferation of Verkehrsverbünde.

The rapid emergence of new shared-use modes, from bikesharing to ride sourcing to taxi hailing, has only heightened the relevance of the Verkehrsverbund model. Such a structure has proved to be innately flexible in incorporating new actors in the transit sphere. For example, the city of Bremen has long offered a single smart card that provides both transit and carsharing access. This study shows that government action has been a critical component to harnessing the positive coopetition of Verkehrsverbünde in Germany. The work encourages other nations to aim for the virtuous cycle of transit coopetition and sees upstream legislative reform as an important precondition for achieving such local public transportation outcomes.

REFERENCES

1. Brandenburger, A.M., and B.J. Nalebuff. *Coopetition.* Crown Publishing Group, New York, 2011.
2. Pucher, J., and S. Kurth. Verkehrsverbund: The Success of Regional Public Transport in Germany, Austria, and Switzerland. *Transport Policy,* Vol. 2, No. 4, 1995, pp. 279–291.
3. Buehler, R. Promoting Public Transportation: Comparison of Passengers and Policies in Germany and the United States. In *Transportation Research Record: Journal of the Transportation Research Board, No. 2110,* Transportation Research Board of the National Academies, Washington, D.C., 2009, pp. 60–68.
4. Freitag, A. The Role and Significance of Verkehrsverbünde Within a Market Undergoing Progressive Liberalisation. In *Transport Alliances: Promoting Cooperation and Integration to Offer a More Attractive and Efficient Public Transport,* Verband Deutscher Verkehrsunternehmen e.V., Cologne, Germany, 2010.
5. Buehler, R., J. Pucher, and U. Kunert. *Making Transportation Sustainable: Insights from Germany.* Brookings Institution, Washington, D.C., 2009.
6. Elste, G. Transport Companies and Authority Alliances (Aufgabenträgerverbünde): Shared and Conflicting Interests. In *Transport Alliances: Promoting Cooperation and Integration to Offer a More Attractive and Efficient Public Transport,* Verband Deutscher Verkehrsunternehmen e.V., Cologne, Germany, 2010.
7. Krause, R. Forty Years of an Alliance: The Emergence and Development of the World's First Verkehrsverbund in Hamburg. In *Transport Alliances: Promoting Cooperation and Integration to Offer a More Attractive and Efficient Public Transport,* Verband Deutscher Verkehrsunternehmen e.V., Cologne, Germany, 2010.
8. Knieps, M. The Development and Significance of Verkehrsverbünde in Germany. In *Transport Alliances: Promoting Cooperation and Integration to Offer a More Attractive and Efficient Public Transport,* Verband Deutscher Verkehrsunternehmen e.V., Cologne, Germany, 2010.
9. Scholl, L. Privatization of Public Transit: A Review of the Research on Contracting of Bus Services in the United States. *Berkeley Planning Journal,* Vol. 19, No. 1, 2006, pp. 143–161.
10. Bruijn, H.D., and W. Dicke. Strategies for Safeguarding Public Values in Liberalized Utility Sectors. *Public Administration,* Vol. 84, No. 3, 2006, pp. 717–735.
11. Alexandersson, G., S. Hultén, and S. Fölster. The Effects of Competition in Swedish Local Bus Services. *Journal of Transport Economics and Policy,* Vol. 32, No. 2, 1998, pp. 203–219.
12. Alexandersson, G., and S. Hultén. The Swedish Railway Deregulation Path. *Review of Network Economics,* Vol. 7, No. 1, 2008, pp. 18–36.
13. Alexandersson, G., S. Hultén, J.-E. Nilsson, and R. Pyddoke. *The Liberalization of Railway Passenger Transport in Sweden: Outstanding Regulatory Challenges.* Centre for Transport Studies Stockholm, Swedish National Road and Transport Research Institute, Stockholm, 2012.
14. Jansson, K., and B. Wallin. Deregulation of Public Transport in Sweden. *Journal of Transport Economics and Policy,* Vol. 25, No. 1, 1991, pp. 97–107.
15. Savage, I. Deregulation and Privatization of Britain's Local Bus Industry. *Journal of Regulatory Economics,* Vol. 5, No. 2, 1993, pp. 143–158.
16. Gomez-Ibanez, J.A., and J.R. Meyer. Privatizing and Deregulating Local Public Services: Lessons from Britain's Buses. *Journal of the American Planning Association,* Vol. 56, No. 1, 1990, pp. 9–21.
17. Stone, J. Can European Models of Public Transport Governance Help to Save Australian Cities? Presented at State of Australian Cities National Conference, Melbourne, Victoria, Australia, 2011.
18. Lalive, R., and A. Schmutzler. Entry in Liberalized Railway Markets: The German Experience. *Review of Network Economics,* Vol. 2, No. 2, 2008, pp. 1–16.
19. Güehnemann, A. *Current Practice in Funding of Urban Transport: The Case of Germany.* Institute of Transport Studies, University of Leeds, United Kingdom, 2009.
20. Umweltbundesamt Deutschlands. *Umweltpolitische Handlungsempfehlungen für die Finanzierung des ÖPNV* (in German). Umweltbundesamt, Dessau, Germany, 2010.
21. Hunold, M., and C. Wolf. *Competitive Procurement Design: Evidence from Regional Passenger Railway Services in Germany.* Discussion Paper No. 13-009. Centre for European Economic Research, Mannheim, Germany, 2013.
22. Phraner, S.D. *TCRP Research Results Digest 47: International Transit Studies Program Report of the Spring 2000 Mission: Germany's Track-Sharing Experience: Mixed Use of Rail Corridors.* Transportation Research Board of the National Academies, Washington, D.C., 2002.
23. Beck, A. The Distinction Between Commercial and Non-Commercial Bus Services in Germany: Given by Nature? *Transport Policy,* Vol. 19, No. 1, 2012, pp. 26–35.
24. Link, H. German Railway Reform. *Japan Railway and Transport Review,* 1994, No. 2, pp. 19–22.
25. Bowers, P.H. Railway Reform in Germany. *Journal of Transport Economics and Policy,* Vol. 30, No. 1, 1996, pp. 95–102.
26. Knieps, G. Railway (DE-)regulation in Germany. *CESifo DICE Report,* Vol. 3, No. 4, 2005, pp. 21–25.
27. Schulten, T. *Liberalisation, Privatisation, and Regulation in the German Local Public Transport Sector.* Wirtschafts- und Sozialwissenschaftliches Institut der Hans Böckler Stiftung, Düsseldorf, Germany, 2006.
28. Schmidt, S., and R. Buehler. The Planning Process in the US and Germany: A Comparative Analysis. *International Planning Studies,* Vol. 12, No. 1, 2007, pp. 55–75.
29. *Gesetz zur Entflechtung von Gemeinschaftsaufgaben und Finanzhilfen.* BGBl. I, 2007.
30. Schnell, M.C.A. Competition for the German Regional Rail Passenger Market 5 Years After Regionalization. *Transport Reviews,* Vol. 22, No. 3, 2002, pp. 323–334.

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