

Table 1. Journal Articles, Books, and Other Reports

	Author	Year	Title	Source	Peer Review	Keywords	Topic Area	Page
1	Abdel Aziz, A.M.	2007	Successful delivery of public-private partnerships for infrastructure development	Journal of Construction Engineering and Management	Y	Partnerships; build/operate/transfer; privatization; contracts; delivery; infrastructure	Transportation P3s	23
2	Abdel Aziz, A.M.	2014	Unsolicited Proposals for Public-Private Partnership Projects: Private Sector Perceptions in the USA	Construction Research Congress (ASCE)	N	Partnerships; unsolicited P3 proposals; incentives; governance; procurement	Unsolicited P3 in U.S.	23
3	Adler, N., & Liebert, V.	2014	Joint impact of competition, ownership form and economic regulation on airport performance and pricing	Transportation Research Part A	Y	Airport efficiency; ownership form; regulation; competition; pricing	Regression analysis	23
4	AECOM	2012	Evaluation of Public-Private Partnerships	Washington State Joint Transportation Committee P3 Study	N	Benefits of P3; case study assessment; tools/guidance	Highway P3s	23
5	Airports Council International	2017	Airport Infrastructure Needs 2017-2021	ACI Report	N	Infrastructure needs survey	Airport infrastructure	23
6	Akintoye, A., & Beck, M.	2009	Policy, Management and Finance of Public-Private Partnerships	Book	N	P3; procurement; governance; policy	Policy, financial, and managerial aspects of P3	24
7	Albalate, D., Bel, G., Fageda, X.	2014	Beyond pure public and pure private management models: Partial privatization in the European Airport Industry	International Public Management Journal	Y	Partial privatization; mixed public-private companies; airports	Airport privatization - Europe	24
8	Albalate, D., Bel, G., Geddes, R.	2012	Recovery Risk and Labor Costs in Public-Private Partnerships: Contractual Choice in the U.S. Water Industry	Research Institute of Applied Economics Working Paper	N	Privatization; public-private partnerships; water; contracting out	Water system privatization	24

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9	Albalate, D., Bel, G., Geddes, R.	2015	Do Public-Private Partnership Enabling Laws Increase Private Investment in Infrastructure?	Research Report	N	Transportation infrastructure; P3s; private investment' state public-private partnership enabling laws; fiscal constraints	Impact of P3 enabling laws - U.S.	24
10	Andrew, D., & Dochia, S.	2006	The growing and evolving business of private participation in airports: New trends, new actors emerging	WorldBank Gridlines (newsletter)	N	Airports; P3; international review	Review of international P3 in airports	24
11	Alonso, B., Daniels, G., Devlin, R.	2014	Market Update: US Public Private Partnership (P3) Sector	Practical Law (newsletter)	N	U.S. P3; multi-sector; case-study review	Review of overall P3 market in U.S.	25
12	Assaf, A.G., & Gillen, D.	2012	Measuring the joint impact of governance form and economic regulation on airport efficiency	European Journal of Operational Research	Y	Governance form; economic regulation; international airports; statistical analysis	Statistical analysis of airport efficiency	25
13	Augustyniak, W.	2010	Privatization of Airports as a Way for Air Infrastructure Development	Journal of International Studies	Y	Polish airports; airport privatization; deregulation	Airport privatization - Poland	25
14	Backx, M., Carney, M., Gedajlovic, E.	2002	Public, private, and mixed ownership and the performance of international airlines	Journal of Air Transport Management	Y	Privatization; airline industry; performance; efficiency; private ownership; mixed ownership	Airline privatization - International	25
15	Bauxbaum, J., Ortiz, I.	2007	Protecting the Public Interest: The Role of Long-Term Concession Agreements for Providing Transportation Infrastructure	USC Keston Institute for Public Finance and Infrastructure Policy Research Paper	N	Long-term concessions; strategies; public interest; case study review	Impact of long-term concession agreements	25
16	Baxandall, P.	2009	Private Roads, Public Costs: The Facts about Toll Road Privatization and how to Protect the Public	U.S. PIRG Education Fund Report	N	Highway privatization; barriers; public interest	Review of issues with toll road privatization	25
17	Bel, G., & Fageda, X.	2007	Why do Local Governments Privatize Public Services? A Survey of Empirical Studies	Local Government Studies	Y	Survey/literature review; privatization of public services; governance and political environment	Drivers of privatization of public services	25

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18	Bel, G., & Fageda, X.	2013	Market power, competition and post-privatization regulation: Evidence from changes in regulation of European airports	Journal of Economic Policy Reform	Y	Privatization; regulation; competition; airports; air transport	Statistical analysis of relationships between privatization, regulation, and competition	25
19	Bettini, H., & Oliviera, A.	2016	Two-sided platforms in airport privatization	Transportation Research Part E: Logistics and Transportation Review	Y	two-sided platforms; airports; privatization; demand	Statistical analysis of relationship between privatization and demand	26
20	Bilotkach, V., Clougherty, J., Mueller, J., Zhang, A.	2012	Regulation, privatization, and airport charges: panel data evidence from European airports	Journal of Regulatory Economics	Y	Airports; airport charges; regulation; privatization; hubs	Airport privatization - Europe	26
21	Bipartisan Policy Center	2016	Bridging the Gap Together: A New Model to Modernize U.S. Infrastructure	Bipartisan Policy Center Report	N	Recommendations for P3; multi-sector; framework for P3; case studies	Framework for establishing P3 for public services	26
22	Boardman, A., Poschmann, F., Vining, A.	2005	North American infrastructure P3s: examples and lessons learned	Chapter in: The challenge of public-private partnerships: Learning from international experience, eds. Hodge, G., & Greve, C.	N	Infrastructure P3; historical review; risk allocation	Review of infrastructure P3 in Canada and the U.S.	26
23	Burton, C.	2007	An Analysis of the Proposed Privatization of Chicago's Midway Airport	Journal of Air Law and Commerce	Y	Privatization in U.S.; Midway Airport case study review	Detailed review of proposed privatization of Midway	26
24	Busch, N., & Givens, A.	2012	Public-private partnerships in homeland security: Opportunities and challenges	Homeland Security Affairs	N	Homeland security; P3	P3 in homeland security and defense	26

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25	Carney, M., & Mew, K.	2003	Airport governance reform: a strategic management perspective	Journal of Air Transport Management	Y	Airport management; corporate governance; international airports; stakeholders	Impact of governance on stakeholder outcomes	26
26	Carnis, L., & Yuliawati, E.	2013	Nusantara: Between sky and earth could the PPP be the solution for Indonesian airport infrastructures?	Case Studies on Transport Policy	Y	Airport infrastructure; funding; P3; Indonesia	Airport privatization - Indonesia	27
27	Monk, A., Levitt, R., Garvin, M., South, A., Carollo, G.	2012	Public-Private Partnerships for Infrastructure Delivery	Collaboratory for Research on Global Projects research report	N	Infrastructure P3; value for money	Detailed review of P3 potential for infrastructure in U.S.	27
28	Castleman, S.	2011	U.S. Transportation Provision: Does "Pure Privatization" Offer a Potential Solution to Government Failure and the Limitations of Public-Private Partnerships?	Public Administration Review	Y	Pure privatization; transportation P3	Review of "Last Exit: Privatization and Deregulation of the U.S. Transportation System" by Clifford Winston	27
29	Cheung, E., Chan, A., Kajewski, S.	2012	Factors contributing to successful public private partnership projects	Journal of Facilities Management	Y	Partnerships; procurement	Survey-based empirical study	27
30	City of Denver	2015	Privatization Practices: Performance Audit	City of Denver Office of the Auditor Report	N	Audit; privatization practices; governance	Review of privatization practices in Denver	27
31	Cook, G.	2001	Airport commercialization and privatization. Why?			Airport privatization; commercialization; corporatization; alternative models	Airport privatization - UK	27
32	Cruz, C., & Marques, R.	2011	Contribution to the study of PPP arrangements in airport development, management and operation	Transport Policy	Y	Airport concessions; P3; privatization	Airport privatization - Europe	28

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33	Cruz, C., & Marques, R.	2013	Flexible contracts to cope with uncertainty in public-private partnerships	International Review of Project Management	Y	Flexibility; health care infrastructure; infrastructure development; p3	Case-study review - hospital P3	28
34	Cruz, C., & Sarmento, J.	2017	Airport privatization with public finances under stress: An analysis of government and investor's motivations	Journal of Air Transport Management	Y	Privatization; airport regulation; concessions; P3	Airport privatization - Portugal	28
35	Czerny, A.	2013	Public Versus Private Airport Behavior when Concession Revenues Exist	Otto Beishheim School of Management Working Paper	N	Privatization; congestion; concessions; retail services; car rentals		28
36	Czerwinski, J.	2010	Policy Issues in U.S. Transportation Public-Private Partnerships: Lessons from Australia	Mineta Transportation Institute Report	N	Financing; highway construction; P3; tolls	Review of highway P3 in U.S.	28
37	Dannin, E.	2005	Red Tape or Accountability: Privatization, Publicization, and Public Values	Cornell Journal of Law and Public Policy	Y	Accountability; public support	General review of accountability in private vs. public sector	28
38	De Bettignies, J., & Ross, T.	2004	The economics of public-private partnerships	Canadian Public Policy	Y	P3; cost efficiency; government services; capital costs; financial risk	Overview of the economics of P3 projects	28
39	De Swardt, G., & Leighland, J.	2001	Public private sector partnerships for the future management and development of airports in South Africa	South African Transport Conference paper presentation	N	Airport P3; airport development; management	Airport privatization - South Africa	28
40	Delmon, J.	2010	Understanding Options for Public-Private Partnerships in Infrastructure - Sorting out the forest from the trees: BOT, DBFO, DCMF, concession, lease...	World Bank Policy Research Working Paper	N	Infrastructure P3 options; method for identifying appropriate P3 option	Review of different P3 alternatives	29
41	Delmon, J.	2017	Public-private partnerships projects in infrastructure: An essential guide for policy makers	Book	N	Infrastructure investment; P3; multi-sector	Guidebook for P3 projects across multiple sectors	29
42	Deloitte	2006	Closing the Infrastructure Gap: The Role of Public-Private Partnerships	Deloitte Research Study	N	P3 benefits; multi-sector; international case studies	General review of P3	29

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43	Deloitte	2010	Partnering for value: structuring effective public-private partnerships for infrastructure	Deloitte Research Study	N	P3; economics of long-term infrastructure development; value for money assessment; hypothetical case study	P3s during the recession	29
44	Dewulf, G., Garvin, M., Duffield, C.	2011	What are the benefits of standardized PPP procurement processes?	Conference proceedings (Joint C1B W070, W092 & TG72 International Conference: Delivering Value to the Community)	N	Infrastructure; procurement strategies; P3	Analysis of case studies to identify benefits of standardization	29
45	Dewulf, G., Garvin, M., Duffield, C.	2012	Does standardized procurement hinder PPPs?	Conference proceedings (EPOC 2012 Conference)		Infrastructure; procurement; P3; standards	Comparative analysis of P3s in Europe, Australia, and U.S.	29
46	Dillingham, G. [GAO]	2014	Airport Funding: Aviation Industry Changes Affect Airport Development Costs and Financing	GAO study/testimony (GAO-14-658T)	N	Airport economics; aviation industry trends; cost of airport development; federal funding	Economic study on U.S. airport industry	30
47	DiNapoli, T.	2013	Private Financing of Public Infrastructure: Risks and Options for New York State	Report from New York State Comptroller	N	New York State P3 history; state P3 legislation; structure of P3; risks of P3	Analysis of P3 opportunities and impacts in NYS	30
48	Doll, C., & Karagyozov, K.	2010	Violation or strengthening of the self-financing doctrine at international airports by SMCP funded PPP schemes?	Research in Transportation Economics	Y	P3; marginal social cost pricing; capacity allocation	Case study analysis to identify violations of EU legislation	30
49	Domingues, S., Zlatkovic, D., Roumboutsos, A.	2014	Contractual flexibility in transport infrastructure PPP	European Transport Conference paper presentation	N	Contractual flexibility; critical success factors; renegotiation	Consideration of contractual flexibility for P3 projects	30

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50	Eaton, D., & Akbiyikli, R.	2005	Quantifying quality: a report on PFI and the delivery of public services	Royal Institution of Chartered Surveyors (RICS) - University of Salford, UK	N	Private finance initiative (PFI); case studies; barriers to PFI projects	Review of UK-specific PFI program	30
51	Engel, E., Fischer, R., Galetovic, A.	2013	The basic public finance of public-private partnerships	Journal of the European Economic Association	Y	P3; budgetary accounting; public provision	Overview of P3 efficiency and fiscal impact	30
52	Ernico, S., Boudreau, B., Reimer, D., Van Beek, S.	2012	Considering and Evaluating Airport Privatization			P3; airport privatization	Guidebook for airport operators and other stakeholders on spectrum of and considerations associated with airport privatization options	30
53	Evenhuis, E., & Vickerman, R.	2010	Transport pricing and public-private partnerships in theory: Issues and suggestions	Research in Transportation Economics	Y	P3; social marginal cost pricing; incentives; EU transport policy	Incorporation of social marginal cost pricing to P3s	30
54	Estache, A., Juan, E., Trujillo, L.	2016	Public-Private Partnerships in Transport	World Bank Policy Research Working Paper	N	Transportation P3; trends in P3; policy issues; project finance; regulation	Review of evolution of transport P3s internationally	30
55	Farber, N.	2008	Avoiding the Pitfalls of Public-Private Partnerships: Issues to be Aware of when Transferring Transportation Assets			Pros and cons of P3; P3 options/alternatives; highway P3	Analysis of issues with transportation P3	31
56	Fasone, V., Maggiore, P., Scuderi, R.	2014	Airport ownership and financial performance: Evidence from Italy	Journal of Air Transport Management	Y	Privatization; financial performance; airports; ownership type	Airport privatization - Italy	31

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57	FHWA	2007	Case Studies of Transportation Public-Private Partnerships in the United States	FHWA Report (Work Order 05-002)	N	Transportation P3; highways; case studies	Highway P3 case study review	31
58	FHWA	2007	User Guidebook on Implementing Public-Private Partnerships for Transportation Infrastructure Projects in the United States	FHWA Report (Work Order 05-002)	N	Transportation P3; highways; guidebook	Framework for establishing P3 for highway projects	31
59	FHWA	2009	Public Policy Considerations in Public-Private Partnership (PPP) Arrangements	FHWA white paper	N	Legislation; public policy; contract approaches; state PPP statutes	Developing public policy for P3	31
60	FHWA	2009	Public-Private Partnerships for Highway Infrastructure: Capitalizing on International Experience	FHWA Report	N	Contract management; infrastructure; procurement; P3; value for money; key performance indicator; performance measure	Review of international PPP programs for highway infrastructure	31
61	FHWA	2011	Key Performance Indicators in Public-Private Partnerships: A State-of-the-Practice Report	FHWA Report	N	Key performance indicator; performance measure; P3; toll road; transportation asset measurement	Indicators to evaluate highway P3 projects	32
62	FHWA	2013	Guidebook for Risk Assessment in Public Private Partnerships	FHWA P3 Toolkit	N	Risk assessment framework; risk identification; risk management; risk allocation; risk valuation; quantitative risk analysis	Detailed guidance on risk assessment for highway P3	32
63	FHWA	2013	Guidebook for Value for Money Assessment	FHWA P3 Toolkit	N	Value for money; framework VFM; qualitative analysis; quantitative analysis; value for money comparison	Detailed guidance on conducting a value for money assessment for highway P3 projects	32
64	FHWA	2016	Successful Practices for P3s: A review of what works when delivering transportation via public-private partnerships	FHWA report	N	Transportation P3; best practices	Best practices for transportation P3s	32

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65	Forrer, J., Kee, J., Newcomer, K., Boyer, E.	2010	Public-Private Partnerships and the Public Accountability Question	Public Administration Review	Y	Public accountability; P3; multi-sector	Framework for exercising accountability with P3	32
66	Frank, L.	2011	Business models for airports in a competitive environment. One sky, different stories.	Research in Transportation Business & Management	Y	Airport strategies; airport management; airport business models; airport case-studies	Comparative review of business models at airports	32
67	Gaffner, A., Youssef, J., Cortez, M.	2016	Leveraging the Private Sector to Improve Airport Infrastructure: Upsides and Risks of Airport Privatization	Oliver Wyman white paper	N	Privatization; private capital; UK	Airport privatization - UK	32
68	GAO	2005	Air Traffic Control: Characteristics of Performance of Selected International Air Navigation Service Providers and Lessons Learned from Their Commercialization	GAO Report to Congressional Requesters	N	Air traffic control; commercialization; international review	Review of commercialization of air traffic control internationally	33
69	GAO	2008	Highway Public-Private Partnerships: More Rigorous Up-front Analysis Could Better Secure Potential Benefits and Protect the Public Interest	GAO Report to Congressional Requesters	N	Highway P3; public interest; public accountability	Review of highway P3 in U.S.	33
70	GAO	2014	Airport Privatization: Limited Interest Despite FAA's Pilot Program	GAO Report to Congressional Addressees	N	FAA P3 Pilot Program; airport privatization; program evaluation	Review of FAA P3 Pilot Program	33
71	Garvin, M.	2010	Enabling Development of the Transportation Public-Private Partnership Market in the United States	Journal of Construction Engineering and Management	Y	Infrastructure; procurement; project delivery; P3; transportation; international case studies	Recommendations for expanding transportation P3 in the U.S.	33
72	Garvin, M., & Mahalingam, A.	2011	Project delivery and financing: conventional and alternative methods	Chapter in: Organization Management in Construction, eds. Chinowsky, P., & Songer, A.	N	Project delivery methods; alternative financing; privatization; multi-sector	Review of different project delivery methods	33

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73	Gessell, L.	2007	Airport Privatization and the reluctance of U.S. airports to adapt	Chapter in: The Administration of Public Airports, eds. Gessell, L., & Sobotta, R.	N	Airport privatization; airport management; airport P3 in U.S.	Airport privatization - United States	33
74	Gillen, D.	2011	The evolution of airport ownership and governance	Journal of Air Transport Management	Y	Airport governance; privatization; airport-airline relationship	Overview of trends in airport governance	33
75	Gillen, D., & Mantin, B.	2014	The importance of concession revenues in the privatization of airports.	Transportation Research Part E: Logistics and Transportation Review	Y	Airport concessions; privatization; congestion	Investigation of concession revenues and privatization	33
76	Gonzalez, E., & Garvin, M.	2014	Case Study of LMM Airport Concession in Puerto Rico	Construction Research Congress (ASCE)	N	LMM International Airport privatization; FAA P3 Pilot Program; case study	Detailed case study review of LMM Airport privatization	34
77	Gonzalez, E., & Garvin, M.	2017	Impact of Project Environment Characteristics on PPP Value Creation and Innovation	Engineering Project Organization Conference working paper	N	P3; innovation; Value for Money; case studies (highway)	Assessment of highway P3 case studies	34
78	Graham, A.	2009	How important are commercial revenues to today's airports?	Journal of Air Transport Management	Y	Airports; commercial revenues; retail; food and beverages	Analysis of commercial revenues	34
79	Graham, A.	2011	The objectives and outcomes of airport privatization	Research in Transportation Business & Management	Y	Airport privatization; efficiency; investment	Systematic literature review on airport privatization	34
80	Grimsey, D., & Lewis, M.	2004	Public Private Partnerships: The Worldwide Revolution in Infrastructure Provision and Project Finance	Book	N	P3; Private Finance Initiative; value for money; risk	Comparison of value for money tests in several countries	34

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81	Grimsey, D., & Lewis, M.	2005	Are Public Private Partnerships Value for Money? Evaluating alternative approaches and comparing academic and practitioner reviews	Accounting Forum	N			34
82	Guevara, J., Garvin, M., Ghaffarzadegan, N.	2016	A Systems Analysis of Governance in Transportation Public-Private Partnerships: Exploring Major Feedback Mechanisms	Engineering Project Organization Conference working paper	N	Transportation P3; governance challenges; systems map; literature review	Analysis of governance systems in transportation (toll-based) P3	34
83	Harrison, M., Gershkoff, I., Church, G.	2013	Air Traffic Control from Anywhere to Anywhere: The Case for ATC Facility Consolidation	Reason Foundation policy study	N	Air traffic control; commercialization; consolidation	Policy study (and promotion of) ATC consolidation	34
84	Hodge, G.	2004	The risky business of public-private partnerships	Australian Journal of Public Administration	Y	Risk transfer; P3; risk sharing	Risk transfers in P3 projects	35
85	Hodge, G., & Greve, C.	2007	Public-private partnerships: an international performance review	Public Administration Review	Y	P3; multi-sector; historical review	Review of P3 projects globally	35
86	Hoppe, E., Husterer, D., Schmitz, P.	2013	Public-private partnerships versus traditional procurement: An experimental investigation	Journal of Economic Behavior & Organization	Y	Infrastructure P3; procurement; incomplete contracts	Experimental study comparing traditional and P3 procurement	35
87	Hultkrantz, L., Karlstrom, U., Nilsson, J.	2005	The Arlanda Airport Rail Link - Lessons Learned from a Swedish PPP Construction Project	Orebro University School of Business working paper	N	Costs and benefits of asset sale; build/operate/transfer; rail system; case study	Case study review of rail link P3 construction project	35
88	ICAO	2013	Case Study on Commercialization, Privatization and Economic Oversight of Airports and Air Navigation Services Providers - United States	ICAO case study report	N	Airport P3; air navigation services providers; privatization; commercialization; case study review	Case studies of airport and air navigation privatization and commercialization in U.S.	35

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89	ICAO	2013	Commercialization and Privatization of Airports and Air Navigation Services Providers	ICAO working paper	N	Airports; air navigation services providers; privatization; commercialization	Assessment of commercialization and privatization at airports	35
90	In, S., Casemiro, L., Kim, J.	2017	A decision framework for successful private participation in the airport sector	Journal of Air Transport Management	Y	Airport development; public infrastructure; ownership and governance; principal-agent problem; P3; privatization	Framework for P3 in the airport sector	35
91	Iossa, E., Spagnolo, G., Vellez, M.	2007	Best practices in contract design in public-private partnerships	World Bank working paper	N	Contract design; P3; best practices; payment mechanisms; risk allocation; contract flexibility; contract duration	Best practices for design of P3 contracts	35
92	Iseki, H., Eckert, J., Uchida, K., Dunn, R., Taylor, B.	2009	Status of Legislative Settings to Facilitate Public Private Partnerships in the U.S.	California PATH Research Report	N	Highway P3; highway financing; legislative settings	Review of legislative setting and relationship to P3 in U.S.	35
93	Ison, S., Francis, G., Humphreys, I., Page, R.	2011	UK regional airport commercialization and privatization: 25 years on	Journal of Transport Geography	Y	Airports; commercialization; privatization; regulation	Airport commercialization and privatization - UK	36
94	Istrate, E., & Puentes, R.	2016	Moving Forward on Public-Private Partnerships: U.S. and International Experience with PPP Units	Brookings-Rockefeller: Project on State and Metropolitan Innovation	N	Recommendations for P3; multi-sector; review of P3 markets	Recommendations for expanding P3 in the U.S.	36
95	Johnston, V.	2011	Entrepreneurial Megaproject Leadership, Innovation, and Accountability: Denver's International Airport, T-REX, and FasTracks	Public Works Management & Policy	Y	Transportation system; alternative project delivery; airport; megaprojects	Review of megaprojects in Denver metro region (airport, T-REX, FasTracks)	36

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96	Kalakou, S., & Macario, R.	2013	An innovative framework for the study and structure of airport business models	Case Studies on Transport Policy	Y	Airport business models; airport case studies; airport management; airport regeneration	Review of different airport business models	36
97	Ke, Y., Wang, S., Chan, S.	2010	Risk Allocation in Public-Private Partnership Infrastructure Projects: Comparative Study	Journal of Infrastructure Systems	Y	Risk allocation; risk management; P3; comparative study	Study of risk allocation in P3 projects in UK, China, Hong Kong, and Greece	36
98	Kidokoro, Y., & Zhang, A.	2017	Forms of Airport Regulation and Privatization: Effects on Airport Charge, Capacity and Welfare			Price cap regulation; cost-based regulation; partial privatization; full privatization	Examination of the effects of different airport regulation and management models	36
99	Koppenjan, J.	2005	The Formation of Public-Private Partnerships: Lessons from Nine Transport Infrastructure Projects in the Netherlands	Public Administration	Y	Transportation P3; infrastructure projects; case studies	Review of transportation projects in Netherlands	37
100	Koppenjan, J., & Enserinck, B.	2009	Public-Private Partnerships in Urban Infrastructures: Reconciling Private Sector Participation and Sustainability	American Society for Public Administration	N	P3; multi-sector; governance practices; urban sustainability	Review of P3 in urban infrastructure	37
101	Kutulu, L., & McCarthy, P.	2016	US airport ownership, efficiency, and heterogeneity	Transportation Research Part E: Logistics and Transportation Review	Y	Cost efficiency; airport governance; airport ownership; public sector	Detailed analysis of cost efficiency	37
102	Kwak, Y., Chih, Y., Ibbs, C.	2009	Towards a comprehensive understanding of public-private partnerships for infrastructure development	California Management Review	Y	P3; multi-sector; literature review	Compilation of research findings of P3 internationally	37
103	Lawther, W.	2007	Privatization of Transportation Systems	Chapter in: Handbook of Transportation Policy	N	Transportation P3; types of P3; challenges and disadvantages; benefits of P3	Concept of P3 in transportation sector	37

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104	Lin, M.	2013	Airport privatization in congested hub-spoke networks	Transportation Research Part B: Methodological	Y	Airport privatization; hub-spoke network; cost-recovery constraint	Detailed analysis of privatization in hub-spoke networks	37
105	Liu, T., & Wilkinson, S.	2011	Adopting innovative procurement techniques: Obstacles and drivers for adopting public private partnerships in New Zealand	Construction Innovation	N	P3; multi-sector; procurement; barriers	Assessment of P3 in New Zealand	37
106	Liu, J., Love, P., Smith, J., Regan, M., Davis, R.	2015	Life Cycle Critical Success Factors for Public-Private Partnership Infrastructure Projects	Journal of Management in Engineering	Y	Critical success factors; P3; project management success; multi-sector	Framework for analysis of life cycle success factors in P3 contracts	38
107	Liu, T., Bennon, M., Garvin, M., Wang, S.	2017	Sharing the Big Risk: Assessment Framework for Revenue Risk Sharing Mechanisms in Transportation Public-Private Partnerships	Journal of Construction Engineering and Management	Y	P3; toll road; revenue risk; borrowing capacity; value at risk	Framework for transportation P3 risk sharing	38
108	Macario, R.	2010	Critical issues in the design of contractual relations for transport infrastructure development	Research in Transportation Economics	Y	P3; transport infrastructure; contractual relations; infrastructure pricing	Critical issues in design and implementation of transportation P3 projects	38
109	Magagi, R.	2011	Increasing Trend Towards Airport PPPs in Emerging Markets	IFC Global Airport PPP Seminar paper presentation	N	Airport P3; emerging markets	Expansion of P3 market	38
110	Mantin, B.	2012	Airport complementarity: Private vs. government ownership and welfare gravitation	Transportation Research Part B: Methodological	Y	Airports; private ownership; public ownership; complementarity	Impact of airport ownership on welfare	38
111	Martimort, D., & Pouyet, J.	2008	To build or not to build: Normative and positive theories of public-private partnerships	International Journal of Industrial Organization	Y	P3; bundling/unbundling; agency costs; capture	Evaluation of pros and cons of bundling construction and management of assets	38

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112	Martin, L., & Saviak, J.	2014	Contracting and Public Private Partnerships	Government Services Partnership Institute (GSPI) report	N	P3; contracting; P3 initiatives; P3 procurement process; risk management; risk transfer; statutory authority; Florida	P3 contracting	38
113	Martinez, S., Hall, A., Walton, C., Mosebar, M.	2013	Public Private Partnerships in the U.S. Transportation Sector: Stakeholder Perspectives	TRB 9th Annual Meeting	N	Transportation P3; stakeholders; infrastructure	Analysis of stakeholder perspectives of transportation infrastructure P3	39
114	Martins, J., Marques, R., Cruz, C.	2014	Maximizing the value for money of PPP arrangements through flexibility: An application to airports	Journal of Air Transport Management	Y	Real options; flexibility; value for money; airports	Incorporating flexibility in airport P3 contracts	39
115	Matsumara, T., Matsushima, N.	2010	Airport privatization and international competition	Institute of Social and Economic Research	N	Airline; airport; privatization; international competition; vertical regulations	Theoretical model of how privatization can improve welfare	39
116	McDougall, G., & Roberts, A.	2008	Commercializing air traffic control: Have the reforms worked?	Canadian Public Administration	Y	Air traffic control; commercialization	Review of ATC commercialization internationally	39
117	McNichol, D.		The United States: The World's Largest Emerging P3 Market	AIG research report	N	P3; multi-sector	General overview of P3 potential in U.S.	39
118	McQuaid, R., & Scherrer, W.	2009	Changing reasons for public private partnerships	Working Papers in Economics and Finance, University of Salzburg	N	Microeconomics; macroeconomics; P3; multi-sector; efficiency	Economic review of costs and benefits of P3	40

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119	Mladenovic, G., Vajdic, N., Wundsche, B., Temeljotov-Salaj, A.	2013	Use of key performance indicators for PPP transport projects to meet stakeholders' performance objectives	Built Environment Project and Asset Management	N	Performance management; P3; stakeholder expectation; key performance indicators; critical success factors	Indicators for evaluation of transportation P3 projects	40
120	Moody's Investors Service	2013	Privatization of Puerto Rico's Main Airport Gets Final Approval, a Credit Positive	Moody's Investors Service Sector Comment	N	LMM International Airport privatization; credit rating	Moody's credit brief for LMM privatization	40
121	National Council for Public-Private Partnerships	2012	Testing Tradition: Assessing the Added Value of Public-Private Partnerships	NCPPP research report	N	Benefits of P3; multi-sector	Promotion of P3 for infrastructure projects	40
122	Neto, C., Casagrande, P., Lancieri, F., Moraes, J.	2016	Pro-competition rules in airport privatization: International experience and the Brazilian case	Journal of Air Transport Management	Y	Airport ownership; cross-ownership restrictions; airport competition; auction rules	Ensuring competition across privatized airports	40
123	Nisar, T.	2006	Risk Management in Public-Private Partnership Contracts	Public Organization Review	Y	Risk management; P3; value for money; secondary financing markets; multi-sector	Risk management	40
124	Nizkorodov, E.	2017	Closing the Infrastructure Gap? The Role of Public-Private Partnerships in Water Sector Development and the Economic, Political, and Social Factors that Determine Project Success	UC Irvine thesis	N	Water sector privatization; private investment	Review of privatization in the water sector	41
125	Noruzoliaee, M., Zou, B., Zhang, A.	2015	Airport partial and full privatization in a multi-airport region: Focus on pricing and capacity	Transportation Research Part E: Logistics and Transportation Review	Y	Multi-airport systems; airport privatization; capacity expansion; pricing	Analysis of privatization scenarios for multi-airport systems	41

	Author	Year	Title	Source	Peer Review	Keywords	Topic Area	Page
126	Olusola Babatunde, S., Opawole, A., Akinsiku, O.	2012	Critical success factors in public-private partnership (PPP) on infrastructure delivery in Nigeria	Journal of Facilities Management	Y	Infrastructure projects; infrastructure P3; project delivery; Nigeria	Infrastructure P3s in Nigeria	41
127	Osei-Kyei, R., Chan, A.	2015	Review of studies on the Critical Success Factors for Public–Private Partnership (PPP) projects from 1990 to 2013	International Journal of Project Management	Y	Critical success factors; P3; case study; literature review	Synthesis of research studies on critical success factors for P3	41
128	Oum, T., Adler, N., Yu, C.	2006	Privatization, corporatization, ownership forms and their effects on the performance of the world's major airports	Journal of Air Transport Management	Y	Privatization; ownership forms; airports; efficiency; profitability	Comparison of efficiency and profitability across airport ownership forms	41
129	Oum, T., Yan, J., Yu, C.	2008	Ownership forms matter for airport efficiency: A stochastic frontier investigation of worldwide airports	Journal of Urban Economics	Y	Ownership forms; airports	Impact of ownership form on efficiency	42
130	Pagdadis, S., Sorett, S., Rapoport, F., Edmonds, C., Rafshoon, G., Hale, M.	2008	A road map to success for public-private partnerships of public infrastructure initiatives	The Journal of Private Equity	Y	Infrastructure P3; costs and benefits of P3	Recommendations for successful P3 for infrastructure	42
131	Port Authority of New York and New Jersey	2012	Project Briefing Book for LaGuardia Airport Central Terminal Building Replacement Project	PANYNJ	N	Design specifications; design/build/finance/operate/maintain	Details on P3 for new terminal at LaGuardia	42
132	Papajohn, D., Cui, Q., Bayraktar, M.	2010	Public-private partnerships in US transportation: Research overview and a path forward	Journal of Management in Engineering	Y	Alternative delivery methods; financing; project delivery; transportation P3	Literature review of transportation P3 in the U.S.	42

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133	Parker, D.	1999	The Performance of BAA before and after Privatization: A DEA Study	Journal of Transport Economics and Policy	Y	BAA privatization	Before and after review of BAA privatization	42
134	Poole, R.	2017	Availability Payment or Revenue-Risk P3 Concessions? Pros and Cons for Highway Infrastructure	Reason Foundation policy study	N	Highway P3; concessions; revenue-risk considerations	Comparison of types of highway concessions	42
135	Poole, R.	2017	Reinventing the Port Authority of New York & New Jersey	Reason Foundation/Manhattan Institute policy study	N	Privatization	Advocacy for privatization of PANYNJ facilities and concessions	43
136	Poole, R.	2017	Annual Privatization Review: Air Transportation	Reason Foundation Annual Privatization Report	N	Airports; air traffic control; privatization	Annual review of privatization in air transport	43
137	Poole, R., & Edwards, C.	2016	Privatizing U.S. Airports	Cato Institute Tax & Budget Bulletin	N	Airport privatization; air traffic control; commercialization	Advocacy for privatization of U.S. airports	43
138	Poole, R., & Stuart, A.	2017	Federal Barriers to Private Capital Investment in U.S. Infrastructure	Reason Foundation policy study	N	Private investment; infrastructure; barriers	Review of barriers to private investment in infrastructure	43
139	Price Waterhouse Cooper	2010	Public-Private Partnerships: The U.S. Perspective	Price Waterhouse Cooper white paper	N	P3 market in U.S.; multi-sector; cost efficiency	Review of P3 market in U.S.	43
140	Reinhardt, W.	2011	The Role of Private Investment in U.S. Transportation Infrastructure Needs	Transportation Development Foundation report	N	P3 market in U.S.; multi-sector; infrastructure; recommendations	Review of private investment for transportation infrastructure	43
141	Reside, J.	2009	Global determinants of stress and risk in public-private partnerships (PPP) in infrastructure	Asian Development Bank Institute working paper	N	Determinants of stress; infrastructure P3; policy improvements; political risk	Empirical study of drivers of stress in P3 projects	43

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142	Roehrich, J., Lewis, M., George, G.	2014	Are public-private partnerships a healthy option? A systematic literature review	Soc Sci Med	Y	Health sector P3; public and private actors; health management; management practice; literature review	Privatization of health infrastructure	43
143	Rolim, P., Bettini, H., Oliviera, A.	2016	Estimating the impact of airport privatization on airline demand: A regression-based event study	Journal of Air Transport Management	Y	Airports; privatization; demand	Detailed analysis of the impact of privatization on demand	44
144	Sagalyn, L.	2007	Public/private development: Lessons from history, research, and practice	Journal of the American Planning Association	Y	P3 for development; literature review	Overview of P3 in U.S.	44
145	Sakhrani, V.	2016	Flexible Design Strategies for Enhancing Life Cycle Value: An Airport P3 Case Study	Canadian Transportation Research Forum Conference paper presentation	Y	Infrastructure P3; life cycle; risk-based valuation; economic value	Review of design strategies for P3 projects	44
146	Savas, E.	2000	Privatization and public-private partnerships	Book	N	Privatization; multi-sector	Comprehensive review of privatization	44
147	Shen, L., Platten, A., Deng, X.	2006	Role of public private partnerships to manage risks in public sector projects in Hong Kong	International Journal of Project Management	Y	P3; Public sector project; risk management; multi-sector	Infrastructure P3s in Hong Kong	44
148	Siemiatycki, M.	2007	What's the secret? Confidentiality in planning infrastructure using public/private partnerships	Journal of the American Planning Association	Y	Infrastructure P3; confidentiality; bidding strategies; transparency	Analysis of confidentiality in P3 process	44
149	Solino, A., Vassallo, J.	2009	Using public-private partnerships to expand subways: Madrid-Barajas International Airport case study	Journal of Management in Engineering	Y	P3; rail projects; case study	Case study review of Madrid-Barajas rail expansion P3	45
150	Tang, L., Shen, Q., Cheng, E.	2010	A review of studies on Public-Private Partnership projects in the construction industry	International Journal of Project Management	Y	Construction P3; partnership; construction management	Review of construction industry P3 projects	45

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151	Tang, R.	2017	Airport Privatization: Issues and Options for Congress	Congressional Research Services	N	FAA P3 Pilot Program; airport privatization; program evaluation	Review of Airport Privatization Pilot Project	45
152	Songer, A., Garvin, M., Loulakis, M.	2012	Competition Requirements of the Design/Build, Construction Manager at Risk, and Public-Private Partnership Contracts - Seven Case Studies	TCRP Legal Research Digest 39	Y	Types of alternative delivery methods; regulatory framework; case studies	Case study review of different contract types in transportation projects	45
153	Macek, N., Neely, E., Claney, E.	2017	TCRP Research Report 191: Public Transportation Guidebook for Small- and Medium-Sized Public-Private Partnerships (P3s)	TCRP Research Report	Y	Transportation P3; transit agency; transit facilities; public transportation	Guidance for small/medium transportation P3	45
154	Tomova, A.	2009	PPP projects and airports: experience and state in world regions	Conference on Applied Infrastructure Research paper presentation	N	Private participation; airport P3	Airport privatization - global	46
155	Tovar, B., & Martin-Cejas, R.	2009	Are outsourcing and non-aeronautical revenues important drivers in the efficiency of Spanish airports?	Journal of Air Transport Management	Y	Airports; technical efficiency; outsourcing	Influence of outsourcing and commercial diversification on airport efficiency	46
156	UK Civil Aviation Authority	2008	Economic Regulation of Heathrow and Gatwick Airports	Civil Aviation Authority decision report	N	Heathrow and Gatwick Airports; economic regulation	Economic review of Heathrow and Gatwick airports	46
157	U.S. Department of Transportation	2017	Early Involvement of Private Developers in the Consideration of Long-Term Public-Private Partnership Concession Options: A Discussion Paper	U.S. Department of Transportation Office of Innovative Program Delivery report	N	Concessions; P3; private developers; stakeholders	Transportation P3 concession options	46

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158	U.S. Department of Treasury	2016	An Economic Framework for Comparing Public-Private Partnerships and Conventional Procurement	U.S. Department of Treasury Office of Economic Policy report	N	Infrastructure P3; traditional procurement; recommendations	Framework for comparing procurement methods for infrastructure projects	46
159	Vasigh, B., & Howard, C.	2012	Evaluating airport and seaport privatization: a synthesis of the effects of the forms of ownership on performance	Journal of Transport Literature	Y	Airport; seaport; privatization; ownership; performance	Analysis of the effects of ownership form on airport/seaport performance	47
160	Vining, A., & Boardman, A.	2008	Public-private Partnerships: Eight Rules for Governments	Public Works Management & Policy	Y	P3 administration; cost economics; alternative procurement models	Recommendations for P3 administration	47
161	Vogel, H.	2011	Do privatized airports add financial value?	Research in Transportation Business & Management	Y	Airport privatization; shareholder value; economic value added; financial performance	Economic benefits of airport privatization	47
162	Werneck, B., & Saadi, M.	2017	The Public-Private Partnership Law Review	The Law Reviews	Y	Legal framework; privatization; P3	Detailed review of legal framework for P3 in several countries (including U.S.)	47
163	Wittman, M.	2014	Public funding of airport incentives in the United States: The efficacy of the Small Community Air Service Development Grant program	Transport Policy	Y	Airport incentives; Small airports; capacity discipline	Review of grant program for small airports	47
164	Yan, J., & Winston, C.	2014	Can private airport competition improve runway pricing? The case of San Francisco Bay area airports	Journal of Public Economics	Y	Airport privatization; upstream competition; downstream competition; airport and airline demand	Impact of private airport competition on runway pricing	47
165	Ybarra, S.	2013	Overhauling U.S. Airport Security Screening	Reason Foundation policy study	N	Airport security; privatization	Privatization of airport security	47

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166	Yescombe, E.	2011	Public-private partnerships: principles of policy and finance	Book	N	Public policy; P3; financial mechanisms	Review of policy and finance for P3 projects	48
167	Yehoue, E., Hammami, M., Ruhashyankiko, J.	2006	Determinants of public-private partnerships in infrastructure	IMF Working Paper	N	Cross-country and cross-industry determinants; P3; drivers of P3 market	Review of the drivers of P3 markets and their success	48
168	Zhang, X.	2005	Criteria for Selecting the Private Partner in Public-Private Partnerships	Journal of Construction Engineering and Management	Y	Build/operate/transfer; infrastructure; financial management; project management; partnerships; privatization; construction industry	Criteria for P3 project development	48
169	Zhang, X.	2005	Critical Success Factors for Public-Private Partnerships in Infrastructure Development	Journal of Construction Engineering and Management	Y	Infrastructure; privatization; financial management; partnerships; construction industry	Success factors for construction P3 projects	48
170	Zhang, X.	2013	A systematic framework for infrastructure development through public private partnerships	IATSS Research	N	Concession; financial regulation; infrastructure; P3; privatization; source selection	Framework for infrastructure P3 projects	48
171	Zhang, A., & Czerny, A.	2012	Airports and airlines economics and policy: An interpretive review of recent research	Economics of Transportation	Y	Airports; airlines; congestion pricing; privatization; regulation; alliances	Airport-airline relationships and privatization	48

Document Descriptions

1. Two common approaches have been used by governments for the implementation of public-private partnerships PPPs: a finance-based approach that aims to use private financing to satisfy infrastructure needs, and a service-based approach that aims to optimize the time and cost efficiencies in service delivery. Based on a detailed analysis of PPPs in the United Kingdom and British Columbia, Canada, this paper describes principles that would characterize the implementation of PPPs at the program level e.g., whether the implementation is successful. The principles pertain to the: availability of a PPP legal framework and implementation units; perception of the private finance objectives, risk allocation consequences, and value-for-money objectives; maintenance of PPPs process transparency; standardization of procedures; and use of performance specifications. Guidelines for successful implementation are explained and discussed in the context of the United States' PPPs experience and impediments.
2. In the global infrastructure market, unsolicited public-private partnership (UPPP) proposals have been promoted and a number of countries have established incentive programs to encourage such proposals. While PPPs have been growing in the United States, development of infrastructure through UPPP is still an area in need of further development. In this research, eighteen major national and international PPP companies working in the United States were surveyed about their regulations, incentive programs, procurement stages and negotiations, procurement time and fees, and competing proposals. Results show that many companies had pursued UPPP, but nearly half would not recommend UPPP in the United States. The reasons given were rooted in government mismanagement, transparency concerns, and lack of competition. Companies reported that a lack of adequate guidelines and short bidding times made the UPPP market difficult to navigate. Most companies also did not favor UPPP incentive programs. The authors conclude that significant work is needed in improving UPPP regulations and procurement processes in the United States.
3. The combined impact of ownership form, economic regulation and competition on airport performance is analyzed using data envelopment analysis to measure cost efficiency in the first stage and regression analysis to measure the impact of the environment in the second stage. The empirical results of an analysis of European and Australian airports over a 10-year timeframe reveal that under relatively non-competitive conditions, public airports operate less cost efficiently than fully private airports. Irrespective of ownership form, regulation is necessary to emulate competitive forces thus pushing airport management towards cost efficiency and reasonable pricing policies. Under potential regional or hub competition, economic regulation inhibits airports of any ownership form from operating and pricing efficiently. Although public and fully private airports operate equally efficiently in a competitive setting, private airports still set higher aeronautical charges. Furthermore, mixed ownership forms with a majority public holding are neither cost efficient nor low price, irrespective of the level of competition.
4. This study was commissioned by the Washington State Legislature's Joint Transportation Committee in order to assess if, why and how public-private partnerships (P3s) can potentially benefit the state in relation to the delivery and operation of its transportation infrastructure. The study focus was both general, providing tools and strategic guidelines for the State in relation to the potential use, benefits and barriers to P3; and specific, through the assessment of five candidate projects that are currently in the State's Transportation Plan.
5. The Airports Council International Needs Assessment (ACI-NA) provides a total estimate of U.S. airports' infrastructure needs for 2017 through 2021, adjusted for inflation - \$99.9 billion or \$20 billion annualized. Sixty-three percent of the development is intended to accommodate growth in passenger

and cargo activity, and thirty percent is intended to rehabilitate existing infrastructure, maintain a state of good repair, and keep airports up to standards for the aircraft that use them. The estimate is a 31.9 percent increase over the 2015-2019 estimate. The \$20 billion in average annual funding needs for U.S. airports is significantly higher than the funding available through annual AIP grants, PFC revenue, and airport generated net income. It is clear that the existing federally-mandated funding system cannot meet U.S. airport infrastructure needs for modernizing and expanding airport capacity, which is critical for a safe, efficient and globally competitive aviation system.

6. This book examines key policy, financial, and managerial aspects of public-private partnerships within the context of the global spread of this form of procurement. The political and institutional issues surrounding P3s are investigated, together with the financial and managerial strategies employed by the private sector. Adopting a cross-disciplinary perspective, the book highlights the often politically sensitive nature of P3 projects and identifies a need for the private sector to investigate a broad set of parameters that relate to the political economy of individual partnerships.

7. The use of private funding and management enjoys an increasing trend in airports. The literature has not paid enough attention to the mixed management models in this industry, although many European airports take the form of mixed public-private companies, where ownership is shared between public and private sectors. We examine the determinants of the degree of private participation in the European airport sector. Drawing on a sample of the 100 largest European airports we estimate a multivariate equation to determine the role of airport characteristics, fiscal variables and political factors on the extent of private involvement. Our results confirm the alignment between public and private interests in partially privatized airports. Fiscal constraints and market attractiveness promote private participation. Integrated governance models and the share of network carriers prevent the presence of private ownership, while the degree of private participation appears to be pragmatic rather than ideological.

8. This study uses an ordered logistic model to empirically examine the factors that explain varying degrees of private involvement in the U.S. water sector through public-private partnerships. Study estimates suggest that a variety of factors help explain greater private participation in this sector. The risk to private participants regarding cost recovery is an important driver of private participation, and the relative cost of labor is also a key factor in determining the degree of private involvement in the contract choice. When public wages are high relative to private wages, private participation is viewed as a source of cost savings. The study therefore finds two main drivers of greater private involvement: one encouraging private participation by reducing risk, and another encouraging government to seek out private participation in lowering costs.

9. This study examines the effect of public-private partnership enabling laws on a state's reliance on private infrastructure investment. The study first analyzes the overall effect of having a PPP enabling law while controlling for a variety of factors, including the state's level of indebtedness, its broad political disposition, union membership, and per capita income. The impact of thirteen individual PPP enabling law provisions are then assessed. The study developed an expert-informed weighted index reflecting the degree to which a state's law is encouraging or discouraging of private investment. The study finds that more favorable PPP enabling laws increase private investment, and that effect is economically significant. The study also found that PPP enabling law provisions allowing unsolicited proposals and those allowing for the mixing of public and private funds are particularly helpful in facilitating private investment in infrastructure.

10. This report describes private participation in airports around the world. It provides a basic overview of P3 in infrastructure.

11. This article analyzes the current state of the US public private partnership sector (as of 2014), including significant legislative and judicial developments. It also describes several major projects currently in procurement or in the pipeline.

12. This paper examines the joint impact that governance structure and economic regulation has on airport efficiency. The previous literature has focused on one or the other of these factors but not both. The empirical investigation component of the study employs a Bayesian model and a Data Envelopment Analysis model. Based on a panel of airports in several countries, the study finds that the form of economic regulation is relatively more important than the type of governance in affecting efficiency. The article provides measures of changes in expected efficiency when either or both the governance form and price regulation changes.

13. The aim of this article is to analyze the trends in ownership structure and business model of European airports. The analysis covers the 10 biggest airports in Poland in a historical depiction as a consequence of deregulation and liberalization of the aviation sector. Additionally, the article presents an operational depiction as one of the restructuring forms that aims at transferring the financial costs and risk connected with the extension of airport infrastructure to the private sector.

14. The theory and evidence regarding the performance of private, public, and mixed ownership airlines are addressed in the context of the international airline industry. The study empirically examines the influence of an airline's ownership structure on multiple dimensions of its performance. In general, the results indicate that public sector airlines under-perform relative to private sector airlines, but worse than private sector carriers.

15. This synthesis explores issues of interest to help the public get the best value for the money it invests in infrastructure using long-term concession methods. It includes a summary of public concerns related to long-term concessions, and then explores information that has been provided to decision-makers for recent concession details. The synthesis also includes a discussion of potential strategies to protect the public interest.

16. This report was designed to help public officials navigate the difficult decisions surrounding toll-road privatization. It outlines how public officials can evaluate privatization proposals to ensure that any such deals benefit the public interest. The authors evaluate one particular form of public-private partnerships in transportation - toll-road privatization - and suggest a series of guidelines public officials should adopt to ensure that any potential private toll road deals benefit the public.

17. This study presents a review of empirical works related to privatization of public services. Most empirical works have focused on analyzing the factors explaining local privatization, but many have low explanatory power due to the methodological difficulties in capturing the dynamic nature of the privatization decision. The review indicates that fiscal stress and pressure from interest groups are explanatory factors of local privatization in early studies devoted to the U.S. market that consider a broad range of services. Cost considerations seem to be taken into account by local governments, particularly when scale economies and transaction costs are taken together. Ideological attitudes of policy makers do not seem to influence local service delivery choices in any systematic way.

18. This paper conducts an empirical analysis of the relationship between privatization, competition, and regulation, drawing on data from a wide sample of European airports. The main hypothesis is that the impact of privatization on regulatory reform will be dependent on the competition scenario that prevails in each airport. The authors provide empirical evidence that the stringency of regulatory reform is related to the level of existing competition. Large airports, with substantial market power, tend to be

subject to highly prescriptive regulation and airports that have nearby competing airports tend to be subject to less prescriptive regulation.

19. This paper develops an empirical model to examine the relationship between ownership change and two-sided-platform formation in the air transport industry. The authors investigate whether privatization enhances the dynamic capabilities of airports so that they more closely resemble a two-sided platform. They study the case of the recent privatization of Brazilian airports. The authors find evidence of a permanent, *ceteris paribus* increase in demand triggered after the privatization program. The results are consistent with a preemption of assets with a view to expanding operations and so benefiting from the network effects offered by a two-sided platform.

20. This paper examines the determinants of airport aeronautical charges by employing a unique panel dataset covering sixty-one European airports over an eighteen-year period. The authors are able to extend the literature on the role of airports as an essential element in transport infrastructure by offering the first analysis of the impact of different regulatory policies and privatization on airport charges. The main empirical results indicate that aeronautical charges are lower at airports when single-till regulation is employed, when airports are privatized, and (tentatively) when *ex post* price regulation is applied. Additionally, hub airports generally set higher aeronautical charges, and it appears that price-cap regulation and the presence of nearby airports do not affect aeronautical charges.

21. This guidebook presents a detailed framework for increased private participation in U.S. infrastructure projects. The framework was developed through a collaborative effort including executives from financial, industrial, logistics, and services industries. The model put forward in this guidance document was designed to help stakeholders engage to make investments in the public interest and underscores the importance of incorporating the full life-cycle costs of an asset, allocating risks across various parties involved, and relying on strategic partnerships between the public and private sectors.

22. This chapter in "The Challenge of Public-Private Partnerships" (eds. Graeme Hodge and Carsten Greve) summarizes the experience with infrastructure P3s in Canada and the U.S. Case studies of a range of public-private relationships collectively labelled as P3s are presented, including classic infrastructure P3 that requires an explicit contract (e.g., Design-Build-Finance-Operate-Maintain) and those in which the public partner negotiates the contract and specifies unit prices paid directly by the users (e.g., toll-roads).

23. The goal of this report are: 1) to develop the history behind both the American and global experiences with privatized airports, 2) to give the current progress of the Midway airport privatization application as well as the current law governing the continued privatization, 3) to outline the theoretical arguments supporting and opposing airport privatization, and 4) to analyze the privatization as it applies to Midway. *Note: This report was released prior to Midway's withdrawal from the FAA privatization pilot program and cancellation of privatization plans.*

24. This article begins to fill a gap in homeland security scholarship by identifying the essential role that public-private partnerships are now taking in homeland security and by examining opportunities and challenges for this transformative shift in the sector. The article begins by contextualizing the argument within recent scholarship and tracing the development of P3s in homeland security. The article then examines the growing role of P3s in homeland security and discusses ongoing challenges that will need to be considered and addressed for P3 to be successful over the long term.

25. Reform of airport governance structures through corporatization, privatization and other approaches to commercialization is intended to generate numerous benefits for air transport system

stakeholders. This paper shows how different modes of governance tend to create trade-offs between stakeholder outcomes. It is suggested that different governance modes embody constraints and incentives that determine the type and quantity of managerial and financial resources that private sector agents will bring to the operation of airports. Additionally, the effectiveness of particular governance modes depends upon national institutional context.

26. This paper considers airport infrastructure in Indonesia and investigates the possibility of defining a solution for their funding. The authors review the drivers of P3 creation in Indonesia, and the role of governance. Recommendations on how the Indonesian government could create a more conducive climate for private sector investment are provided.

27. This paper describes the current state of infrastructure needs in the U.S. and the consideration of alternative delivery methods including public-private partnerships. The paper suggests that the public and private sectors together can provide the best services to meet the growing needs of U.S. infrastructure, and provides guidance on how policymakers can determine when and where P3s make sense, and how to develop procurement and other systems to balance the transfer of risk and reward to the private sector and deliver value for the public's money.

28. This report is a review of *Last Exit: Privatization and Deregulation of the U.S. Transportation System* by Clifford Winston. The original book provides an economic case for, and the political and institutional constraints against, privatizing U.S. public transportation. The review reviews *Last Exit* in the context of other literature and critically evaluates the various hypotheses, conclusions, and recommendations provided in *Last Exit*.

29. This study investigates the factors contributing to the successful delivery of PPP projects by employing an empirical questionnaire survey in Hong Kong and Australia. The survey respondents were asked to rate eighteen factors that contribute to delivering successful PPP projects. Results of the survey were compared to a previous survey conducted in 2003 in the United Kingdom. The comparison showed that several top-rated success factors were consistent across the UK, Hong Kong, and Australia, including 'commitment and responsibility of public and private sectors', 'strong and good private consortium', and 'appropriate risk allocation and risk sharing'.

30. This report provides the results of an audit conducted by the City and County of Denver Auditor's Office Audit Services Division. The audit was focused on privatization practices in the City and County to assess the use and effectiveness of privatization as a service delivery method by City agencies and departments. Auditors reviewed the governance structure in place to support the privatization process from the initial decision to privatize a government function to performance monitoring requirements used to determine the success of a privatized function. The audit focused on a series of case studies to understand the City's varying approaches to privatization. The audit found that the City lacks complete guidance for agencies and departments when determining the most effective method for providing services to its citizens. Performance monitoring of services is also inconsistent.

31. Continued significant growth in air transport demand has out-stripped the ability of the public sector to support and finance necessary airport development. This BAE Systems white paper aims to define the impact of trends towards airport commercialization and privatization through the review of several airport case studies in the UK, UK territories, and Prague. To set the stage for a discussion of commercialization and privatization, the paper first presents key related issues including government policy and strategy, low cost carriers, the legal, regulatory, and institutional environment, airport operations, timescales, and ownership need and control. Alternative models of private sector

participation are examined, and a generic ownership and contracting framework is presented to help with the review of specific case studies.

32. This paper reviews recent developments in airport "privatization", making a distinction between privatization and PPP arrangements using a case study approach. This is driven by a desire to distinguish full divestiture of assets (full privatization) from other PPP arrangements and typical contractual systems like concessions agreements. A comparative analysis of different PPP models used in airport management is presented.

33. This paper addresses the concept of contract flexibility as well as several possibilities for its incorporation into PPP development, acknowledging that uncertainty can be a major barrier to PPP development. The authors propose a double entry matrix as a new model for contract flexibility. A case study (hospital) was selected to assess and evaluate the benefits of developing a flexible contract, building a model based on the real options theory. Evidence supports the initial hypothesis that allowing the concessionaire to adapt - under certain boundaries - the infrastructure and services to changing conditions when new information is known, does increase the value of the project.

34. This study reflects on the motivations for governments to privatize. It is illustrated by a case study (Portugal) in which the privatization occurred as a result of three key drivers: 1) a bailout program by the IMF, the EU, and the ECB; 2) a revision of the regulatory model, and; 3) the need to increase the capacity of Lisbon's airport system in the medium term. The authors consider the potential negative impacts from a welfare perspective of efforts on the part of governments to maximize the sale value of assets or services.

35. This paper analyzes a congested airport that provides aeronautical services to airlines and concessions to retailers and car rental companies. The study concludes that an increase in per passenger retail profit can reduce the private aeronautical charge and the private car rental charge. By contrast, the effect of car rentals on the private aeronautical charge is ambiguous. The welfare-optimal passenger number and aeronautical charge are both independent of retail profit.

36. In this report, the authors examine Australia's experience with transportation PPP arrangements and the lessons that experience holds for the use of PPPs in the U.S. Although the report explores a range of issues, the authors focus on four policy issues that are relevant in the U.S.: 1) how the risks inherent in PPP contracts should be distributed across public and private sector partners; 2) when and how to use non-compete (or compensation) clauses in PPP contracts; 3) how concerns about monopoly power are best addressed; and 4) the role and importance of concession length. The study surveyed relevant literature on PPP international use and interviewed 23 Australian PPP experts.

37. This review discusses privatization and public accountability with the goal to provide recommendations for increasing accountability in both the public and private sectors. It investigates both the transfer of assets and services from public to private entities and the transfer from the private to the public sector.

38. The objective of this paper is to work towards an understanding of the underlying economics of P3s such that stakeholders might be better able to advise governments with respect to where and how P3s might represent better ways to deliver public services.

39. This paper describes the governance and regulatory landscape impacting public-private partnerships in South Africa and how these alternative delivery methods can be incorporated into the future management and developments of airports in the country. The purpose of the paper is to share the experiences and lessons learned by two airports in South Africa that were commercialized.

40. This paper presents a methodology for categorizing public-private partnerships in infrastructure. Several key characteristics are considered: whether the project involves new or existing business, the nature of the private sector's construction obligations, the need for the private sector to mobilize significant private funding from the start, the nature of the private sector's service delivery obligations, and the source of the project revenue stream. The goal of the methodology is to facilitate mapping, referencing, cross-comparison, analytical studies, and descriptions of PPP in infrastructure projects across sector, industry, regional, and geopolitical lines. The methodology is tested against 15 case studies representing different infrastructure sectors, regional applications, and commercial approaches to PPP.

41. This book provides a practical guide to P3s for policymakers and strategists, showing how governments can enable and encourage P3s. The book presents a step-by-step analysis of the development of P3 projects, and explains how P3 financing works, what P3 contractual structure look like, and how P3 risk allocation works in practices. Each infrastructure sector is discussed specifically with a focus on the strategic and policy issues essential for successful development of infrastructure through P3s.

42. This research study from Deloitte Research discusses the concepts of public-private partnerships as well as the current state and trends in privatization globally, with governments and key policy-makers as the target audience. The study presents a maturity model to discuss different levels of PPP activity and sophistication, as well as benefits of PPP projects. The purpose of the study is to provide a roadmap for governments at all stages of PPP development with recommendations on moving up the maturity curve to build the PPP market.

43. The purpose of this Deloitte Research study is to help government leaders address the longer-term issues associated with pursuing their infrastructure objectives in today's environment. Specifically, the study will help government leaders answer the following question: How can the optimal mix of public and private sector involvement for any given project be determined so that limited public dollars can create maximum public value? To this end, the report presents a basic framework for evaluating PPP options given various governance, legislative, and regulatory environments, and stakeholder objectives. A basic Value for Money test is also described.

44. The processes and procedures adopted by different jurisdictions for consideration, procurement and implementation of PPP projects vary considerably. With this in mind, this study analyzes the benefits of standardized PPP procurement processes by applying an analytical framework based on "business model" literature. The framework is applied to evaluate a cross-section of case studies from Australia, Europe, and the U.S. The results confirm the presence of sound reasons and drivers for the different approaches offered - for example, the availability of finance and tendering norms. It is also clear that further standardization of policies, institutional approaches and project documentation may indeed lead to improvements.

45. In this paper, the authors examine the emergence of PPPs in three different developed regions with varying maturity levels and contexts (Europe, Australia, and the U.S.). There is a similar trend in these three areas towards a central and comprehensive PPP archetype. All regions face a similar challenge for PPP procurement - finding the balance between standardization, which is driven by market and socioeconomic forces, and customization, which is driven by end user expectations, local norms and objectives, and unique project characteristics. The authors explore the challenge of standardization and customization by first describing the motives to standardize PPP processes and the need for customized solutions. The multi-national case study approach is used to examine the standardization vs. customization issue in distinctive jurisdictions.

46. This testimony to Congress discusses trends in 1) aviation activity at airports since 2007, 2) costs of airports' planned development, and 3) federal funding and airport revenues that may be available to finance development costs. The investigation specifically discusses private sector participation to finance airport development projects, and how private sector capital markets may be available to some airports but not others.

47. The New York State Comptroller produced this report reviewing private sector involvement in infrastructure projects in New York State, following a 2011 report from the Comptroller that detailed the potential benefits and risks of P3 procurement. The original 2011 report suggested that P3s could help fill an infrastructure gap, but that steps should be taken to limit the risks associated with P3 procurement. This report investigates advancements in P3 activity in New York State in the several years between reports. The report identifies several the risks associated with privately financed infrastructure agreements and suggests ways to reduce such risks.

48. This paper investigates whether social marginal cost pricing schemes comply with strategic policy objectives at the European and national levels. The cases analyzed in this paper deal with two sites with very different characteristics: Munich Airport, which has been publicly operated since 1991, and the Bulgarian airports Varna and Burgas, which have been managed since 2007 by one concessionaire and whose planning and future development is being accomplished with private capital.

49. This paper explores the potential benefits of contractual flexibility with respect to P3 critical success factors through the analysis of case studies of European P3s in the road sector. The results show the existence of flexible mechanisms in contractual agreements in order to respond more adequately to the uncertain future.

50. This report presents a review of the Private Finance Initiative (PFI) in the United Kingdom and its effects on the delivery of public services. At the time of this report, the PFI has been in place for 13 years as a legal framework for concessions in the UK to encourage private capital investment in the construction industry. Several PFI case studies in the UK and Portugal are evaluated to help describe the PFI process as well as potential impacts, lessons learned, and barriers.

51. This paper describes public finance in public-private partnerships, including a consideration of many components of P3 contracts. The authors discuss how resources saved by a government by entering into a P3 contract may be offset by giving up future revenue flows to a concessionaire.

52. ACRP Report 66: Considering and Evaluating Airport Privatization is a guidebook that assists airport operators, policy makers, and other relevant stakeholders as they consider and analyze the potential advantages and disadvantages of implementing various approaches to airport privatization. The guidebook covers a range of potential privatization options, from service contracts to private airport ownership or development. In addition, the guidebook includes case studies conducted at a variety of airports both within the United States and internationally.

53. This paper offers a theoretical examination of the following questions: what are the issues that arise when Social Marginal Cost Pricing is to be incorporated in public-private partnerships, and how may these issues be dealt with? The authors briefly discuss P3s in transport, including their defining characteristics and the main types that exist for different modes of transportation. The paper then identifies the issues that arise when Social Marginal Cost Pricing is incorporated, and possibilities for resolving these issues.

54. This paper summarizes the evidence on the evolution of transport PPPs over the last 15 years or so, globally. It provides a primer on associated policy issues, including the central role of project finance in

the implementation of PPP policies and the debates on risk allocation in the design of PPPs. The paper also offers a discussion of the increasingly well-recognized residual roles for the public sector in transport, with an emphasis on the regulatory debates surrounding the adoption of PPPs.

55. This report discusses issues associated with evaluating PPP agreements for transportation and identifying potential barriers or pitfalls that may occur. The report provides proper tools to make the correct choices when the decision has been made to enter into a PPP agreement for the purpose of leasing or selling a transportation asset. Benefits and limitations of PPPs are also discussed.

56. In the past few decades many countries have increased the presence of various forms of private sector involvement in airport ownership and management. This paper focuses on the financial performance of Italian airport companies. The authors present empirical evidence separately for two groups where public or private management majority prevails. The main findings indicate the companies with a private majority outperform the others in terms of financial indicators that are related to operating income.

57. This report provides a fundamental understanding of PPP approaches and their potential consequences on project time, cost, and quality, and presents the results of actual PPP projects performed in the United States through a series of case studies. The projects selected for this case study review vary in type and maturity and cover the range of private sector involvement associated with different PPP approaches. Each case study explores the reasons why the sponsoring agency elected to pursue a PPP, the structure of the partnership, the nature of project financial and delivery responsibilities, and the issues and impediments that confronted members of the PPP team and how they addressed them. Each case study also presents the results of using the PPP approach applied to the project, lessons learned from performing the project as a PPP, and conclusions about the project to inform the reader about challenges and opportunities.

58. This user guidebook was designed to help municipalities, government agencies, and other stakeholders understand PPP for transportation infrastructure projects. The guidebook describes the range of stakeholders, stages of development, and institutional factors associated with surface transportation PPPs. It considers the full life-cycle of PPPs from development to execution to performance reporting. It also identifies and discusses statutory, regulatory, financial, and institutional issues that should be addressed to successfully implement and manage a PPP project. The guidebook suggests a general process for developing transportation project PPPs and strategies for overcoming impediments faced by public and private sector partners during contract development and project implementation phases.

59. This report is intended to help frame public policy considerations in PPP arrangements. It examines how different states have responded to the issues most frequently raised by examining provisions in state law and PPP agreements. The report identifies and addresses 14 public policy issues related to PPPs, based on a review of Congressional and state legislative hearings, publications, and discussions with key federal, state, and local decision makers. Each policy issue is addressed individually, with information including 1) analyses of how state transportation departments and other public authorities have addressed the public policy considerations in those areas, and 2) charts detailing legislative and contract provisions that have been used.

60. This study collected information about PPP programs for highway infrastructure in Australia, Portugal, Spain, and the United Kingdom, where PPP experience is more extensive. The research team determined that PPPs are an effective strategy for delivering highway projects, and they are service arrangements as much as financial arrangements. The research team observed that potential PPP

projects must be analyzed and structured thoughtfully to preserve public interests and that managing the partnership over the life of the contract is critical in providing the services expected. The study concluded with recommendations for U.S. implementation including convening workshops, developing training guidelines, establishing an expert task group, developing a research strategy, and publishing principles and guideline documents on PPP topics.

61. This report provides a state-of-the-practice description of domestic and international practices for key performance indicators in public-private partnerships. The report is based on a comprehensive literature review and eight case studies from Australia, British Columbia, the United Kingdom, and the United States. The report identifies how government-developed performance measures reflecting societal goals such as congestion management or environmental impact are translated through KPIs and included in project documents for designing, constructing, operating, and maintaining transportation facilities.

62. This guidebook is a component of the FHWA P3 Toolkit. The purpose of this guidebook is to provide an advanced understanding of risk assessment, given that risk assessment is one of the inputs for the quantitative analysis in the Value for Money assessment (discussed in a separate FHWA P3 toolkit guidebook). The guidebook includes the Risk Assessment Tool, an Excel-based tool that demonstrates how a risk assessment can be conducted, designed as an educational exercise.

63. This guidebook is a component of the FHWA P3 Toolkit. The purpose of this guidebook is to describe in both general and detailed ways the concepts and execution of a Value for Money (VfM) assessment. The document provides an advanced understanding of the practical applications for assessing and allocating project life cycle risks, and addresses the numerous challenges faced when doing this.

64. This document focuses on long-term concession agreements where, in addition to project design and construction, the private partner is at least partly responsible for financing and bears most or all of the responsibility for operations and maintenance (Design-Build-Finance-Operate-Maintain). The document is organized around four phases of P3 program/project development: legislation and policy, project development, procurement, and performance monitoring and oversight. The framework outlined in this report has been used in prior USDOT/FHWA documents addressing P3s and represents one approach to organizing successful practices.

65. This article examines public accountability and its application to government and private firms involved in PPPs. An analytical framework is proposed for assessing the extent to which PPPs provide (or will provide) goods and services consistent with the public sector goals of effectiveness, efficiency, and equity. Six dimensions - risk, costs and benefits, political and social impacts, expertise, collaboration, and performance measurement - are incorporated into a model that assists public managers in improving partnerships' public accountability.

66. This paper presents a matrix of reference reflecting the core dimensions of airport operations that organizes the broad array of business practices into an inclusive structure (i.e., the matrix describes the structure of a standard airport business model reflecting the specifics of the airport industry). The paper also investigated whether the air transport industry operates with a standard business model or if different sets of practices can be observed in various airports. The business structure of three airports located in Asia, North America, and the Middle East has been examined to test the idea of multiple airport business models.

67. This paper, from a private sector participant in infrastructure projects (Oliver Wyman), investigates issues associated with privatization and outlines what can be done, by governments and potential investors, to ensure successful airport privatization. The report highlights lessons learned from Oliver

Wyman's extensive experience with airport privatizations and other airport business-improvement projects. It is designed to help sellers and buyers navigate the privatization process and effectively manage its upsides and risks.

68. This Report to Congressional Requesters addresses the following questions: 1) What are common characteristics of commercialized ANSPs in selected foreign countries?; 2) What do available data show about how the safety, cost, and efficiency of air navigation services have changed since commercialization?; and 3) What are some key lessons learned about the commercialization of air navigation services?

69. This Report to Congressional Requesters presents the results of a GAO review of highway public-private partnerships. GAO reviewed: 1) the benefits, costs, and trade-offs of P3s; 2) how public officials have identified and acted to protect the public interest in these arrangements; and 3) the federal role in P3s and potential changes in this role. The report recommends that DOT develop objective criteria for identifying potential national public interests in highway P3s.

70. This Report to Congressional Addressees presents the results of a GAO review of several aspects of airport privatization. Specifically, this report describes 1) the experience with the FAAA Airport Privatization Pilot Program (APPP); 2) challenges airport owners and investors face to full airport privatization; 3) the potential effects of airport privatization; and, 4) reasons why airport privatization is more prevalent outside the U.S. and stakeholder views on the APPP.

71. The principal intent of this paper is to trigger a dialogue about PPPs and how they might improve America's infrastructure assets. Drawing upon data and information collected from two principal sources - 1) case histories of PPP projects in North America to date; and 3) a scanning tour of Australia, Portugal, Spain, and the United Kingdom in 2008 - misconceptions regarding PPPs are clarified, contemporary international policies and practices are characterized, and recommendations for implementing PPPs for transportation infrastructure are made.

72. The purpose of this paper is to discuss the topic of project delivery and financing, with a focus on alternative approaches. The paper describes how alternative approaches are implemented and why they are emerging. Four case studies from the United States and India are included to provide concrete examples. The paper also explores emerging issues in the field, specifically the growing recognition that the efficient frontier of project delivery requires a broader perspective of project arrangements beyond one that is based only on the contractual framework.

73. This paper provides insights as to why the United States has not followed other nations in expanding private involvement in airport infrastructure projects, operations and maintenance.

74. This presentation examines the evolution of airport governance from public utility to modern business. The author briefly reviews airport regulation and, in that context, asks the questions of whether airports need to be regulated and if so, why. The author considers the new thinking on two-sided platforms and examines whether that model may be a new way of thinking about airport governance. The paper argues that dynamic efficiency has been underemphasized in the debate of privatization, and that airport deregulation has been the most important contributor to a shifting balance of power between airlines and airports.

75. In this paper, the authors investigate the tradeoff between the airport's concession and aeronautical revenues. Increasing the frequency of flights may result in congestion that could stimulate demand for concessions, but may also harm the demand for flights. The results of this research could help guide

decision makers in the privatization process by finding that privatization is not recommended unless the potential for concession revenues is sufficiently large.

76. This paper presents a case study of the Luis Munoz Marin (LMM) International Airport privatization in Puerto Rico - one of the projects in the FAA Airport Privatization Pilot Program. The features of the LMM privatization are compared with two other transactions in the FAA Pilot Program. The structure of the LMM privatization deal is discussed, including information on asset ownership, responsibilities for operations, maintenance, and improvements, and other components that make the LMM P3 deal somewhat unique compared to others.

77. This research study sought to assess whether innovation is present in the US P3 market. Six transportation P3 projects in the US were chosen as cases - all highway infrastructure projects. The researchers systematically employed a multi-step rubric to identify technical enhancements and evaluate innovation, and nine technical enhancements were classified as innovative. The results suggest that concessionaires do enhance project value by optimizing a project's design solution, providing both cost and schedule savings. However, innovation appears to be only minimally present in US P3 projects.

78. This paper investigates the importance of commercial revenues to today's airports. It establishes that on average, commercial revenues now account for about half of all revenues, although this varies considerably by region and individual airport, with retail being the most significant commercial source. It explores some of the key factors, such as consumer trends, security developments and political changes, which have led to a much more challenging time for commercial managers since the late 1990s. With growing pressure to control levels of aeronautical revenues, even greater focus on commercial revenues may be needed in the future, and the paper concludes by discussing the implications of this.

79. The objective of this paper is to synthesize research in airport privatization and identify overarching findings that single studies do not produce. A systematic review of all the results in the academic literature is conducted, considering both the objectives and outcomes of privatization. A need for improvements in efficiency, coupled with a requirement for greater investment, appear to be the key drivers of privatization, but the evidence as to whether there are actually performance benefits is inconclusive.

80. This book considers the recent trend for governments to increasingly consider private sector finance, provided by private enterprises constructing and managing public infrastructure facilities. The book brings together an academic assessment of private sector financing with practitioner-based experience of organizing partnerships and advising government bodies.

81. This paper attempts to describe engagement between practitioners of P3 projects and the academics conducting research in the field. The authors consider approaches to value for money tests in a number of countries and compares the views of academics and practitioners.

82. This paper proposes an alternative way of conducting a systematic review of literature on P3 projects. The methodology employed in this study explores P3-related publications in order to highlight governance challenges, identify governance-related variables, and establish causal relationships between such variables. The objective is to develop a systems map informed by past-published evidence from actual P3 projects. A total of 44 papers depicting actual P3-related evidence were selected after examining articles from engineering and non-engineering journals.

83. This Reason Foundation Policy Study presents an original plan for consolidation of airspace and ATC facilities in the continental United States. Under this plan, the current 20 en-route Centers and 167 TRACONS would be consolidated into five high-altitude Centers, eight Integrated Control Facilities, and

38 consolidated TRACONs. The study calls for rethinking the current approach to NextGen and the consolidation of airspace and facilities.

84. This paper presents an empirical investigation of the realities of risk transfers in P3s and compares this experience against both the rhetoric of project proponents and the formal contract conditions. The paper outlines several conceptual frameworks underpinning P3s and establishes the notion of risk shifting and risk sharing.

85. This article argues that evaluations of long-term infrastructure contracts are contradictory in their conclusions regarding effectiveness.

86. This experimental study compares two different modes of provision for infrastructure-based public services. The authors find support for the prediction that, compared to traditional procurement, a public-private partnership provides stronger incentives to make cost-reducing investments (that may increase or decrease service quality). The report also investigates governance structures that explicitly take subcontracting within private consortia into account.

87. This paper seeks to identify the costs and benefits of providing a private company with a monopoly franchise over one particular section of an air-rail network. The paper also highlights tradeoffs present in P3s and in creating facility-based competition within the railroad industry.

88. The International Civil Aviation Organization (ICAO) developed a case study report on commercialization, privatization, and economic oversight of airports and ANSPs in the United States. It provides background to privatization in the U.S. before discussing specifics of the airport governance and ownership landscape in the U.S.

89. This working paper from the International Civil Aviation Organization (ICAO) discusses the governance, ownership and control structures, and management of airports and ANSPs, as well as the selection of an appropriate format and the importance of good corporate governance. The paper describes recent developments with regard to airport and ANSP commercialization and privatization and provides updated information on ICAO related work and policy guidance in this area.

90. In this paper, the authors reframe the conflict between the interests of the private and public sectors in terms of principal-agent theory to help policymakers understand public-private management problems in a broader context. The paper demonstrates how various ownership and governance structures shape the private participation based on 1) ownership type, 2) mode of ownership shift, and 3) ex-post government control. The paper also highlights that this process should be context-based and examines the recent case of Incheon International Airport (IIA) in South Korea to illustrate the importance of contextual factors. The authors end with comprehensive recommendations to policymakers involved in bringing private partners into the airport sector, which include setting a clear agenda, exercising a reasonable level of control, understanding the sharing of risk and responsibility under different structures, and assessing technical, economic and political factors that may affect the policy outcome.

91. This paper provides best practices in all aspects of contract design for public-private partnerships, including: risk allocation, payment mechanisms, flexibility and renegotiation, contract duration, other contractual issues, and transparency and confidentiality.

92. This paper reviews past U.S. legislation to promote and/or limit P3s on transportation projects to evaluate the relationship between legislation and the recent planning and implementation of highway projects through P3s. The authors examine existing state legislation that addresses issues on economics,

public finance, and governance as well as the technical details of P3s to provide an overview of the status of legislative settings pertinent to P3s in the U.S.

93. The purpose of this paper is to revisit the UK Government's stated aims with respect to commercialization and privatization. The authors consider the success of commercialization and privatization against the stated aims with respect to the 16 UK regional airports commercialized by the 1986 Airports Act. In addition, the paper considers the policy ramifications that have eventuated, and the authors argue that many of the benefits may have been achievable by commercialization alone.

94. This study analyzes the potential of institutional solutions (public/private partnership [P3] units) for the infrastructure P3 market in the U.S. The paper explains the concept and characteristics of infrastructure P3s, focusing mainly on transportation, and analyzes the P3 activity in the U.S. to date. The paper then discusses the notion of a P3 unit, based on international experience, and analyzes existing P3 legislation in the U.S. and potential P3 units at the state level.

95. This report reviews several megaprojects in the Denver metropolitan area, with a focus on understanding the factors that make these projects successful.

96. This paper aimed to explore different types of airport business models and studies the operations of twenty airports. These airports were organized into five categories (primary hub, secondary hub, business, low cost and cargo) according to the traffic type they are known to serve and their business profile. After comparing the business models of the airports within each category, the common elements were identified, and their key differentiation parameters were designated. It was found that there is a pattern for the primary and secondary hub airports but not for the business, low cost and cargo airports. The outcome of the paper was the proposal of a new framework for the exploration of airport business models which introduces the concept of airport regeneration and incorporates the factors that impede airport managers from developing the business models they want.

97. This paper aims first to identify the preferred risk allocation in PPP projects of mainland China and the Hong Kong Special Administrative Region (referred to as China and Hong Kong) and then to compare these preferences to those in the U.K. and Greece by a questionnaire survey based on the same risk register. The results in China and Hong Kong show that the public sector preferred to retain most political, legal, and social risks, and share most microlevel risks and force majeure risk; while the majority of meso-level risks were preferred to be allocated to the private sector. The comparative analyses of risk allocation preference among these four countries/jurisdictions indicate that the public sector in the U.K. was most able to transfer the PPP risks to the private sector, followed by Greece, Hong Kong, and China. Respondents from Greece exhibited the greatest degree of support for the public sector to retain the macrolevel risks.

98. This paper examines forms of airport regulation and privatization, considering of behavior of public administration and both the aeronautical and non-aeronautical services. We find that with higher costs associated with public operations, a public airport cannot be identified as a welfare-maximizing body. Whether the partial or full privatization is socially superior depends on the extent of efficiency gains and regulation, as well as the regulatory forms. Full privatization of both aeronautical and non-aeronautical services can, owing to cost reductions to a fuller extent, attain higher social welfare than partial privatization. However, a full privatization without regulation yields a monopoly and related distortions. A full privatization with price cap regulation on aeronautical service could decrease airport charge, but also introduce an underinvestment in airport capacity which could lower social welfare. Finally, regarding the form of airport-pricing regulation – price cap vs. cost-based regulation – which one is superior depends on the relative importance of the underinvestment effect under price cap regulation,

versus a regulatory waste associated with cost-based regulation. Cost-based regulation (price cap regulation) is better at a congested (non-congested) airport, because the underinvestment effect is a more (less) serious concern than the regulatory waste.

99. This article addresses the question of why PPPs in the Netherlands are stagnating. On the basis of a comparative analysis of 9 case studies concerning the building of partnerships, 3 patterns are identified. The first is the successful formation of partnerships resulting in enriched projects. The second pattern is that of early interaction resulting in ambitious proposals for which there is no support. The third pattern shows ineffective market consultations followed by unilateral public planning, leading to stagnating contract negotiations.

100. On the basis of a review of literature on experiences with private sector participation in urban infrastructure projects, this article identifies governance practices that help or hinder the reconciliation of private sector participation in urban infrastructure projects with the objective to increase the sustainability of the urban environment.

101. All US commercial airports are in the public sector yet not all have the same ownership type. For medium and large hub US airports, this paper uses stochastic frontier analysis to analyze the efficiency differences for alternative airport ownership types. The paper finds that while form of ownership may matter for cost efficiency, in general its effect is relatively small. Yet type of public sector ownership does have cost efficiency implications in certain environments. Further, when heterogeneity is not controlled, the results change substantially so that type of ownership matters much more which demonstrates the importance of controlling for cross section heterogeneity.

102. This article collects, codifies, and consolidates these previous research findings to facilitate a comprehensive understanding of PPPs. It discusses the definitions, types, examples of worldwide applications, benefits, and obstacles of Towards a Comprehensive Understanding of Public Private Partnerships for Infrastructure Development PPPs through an in-depth literature review on PPP-related research in the last 20 years. Key findings derived from various researchers and lessons learned are presented and recommendations for both public and private sectors are offered for the future of PPPs for infrastructure development.

103. Taking a multidisciplinary approach, this book addresses the changes facing the field of transportation.

104. This paper investigates airport privatization for one congested hub and two linked local airports serve symmetric hub carriers. The government considers privatizing either the hub or local airports. This paper finds that in each privatizing scenario, welfare-maximizing public airport(s) set a charge below their operating costs to fully coordinate the high charge of privatized airport(s). If this fiscal deficit is not allowed, each scenario causes distortion. Also, retaining the hub airport as public and privatizing one or both local airports achieves the same market outcomes. If all airports are privatized, welfare becomes worse than the other scenarios; the hub airport charges lower (higher) prices than local airports when both local airports are strategic substitutes (complements).

105. This research assesses the drivers of PPP adoption in New Zealand, which include acceleration of infrastructure provision, better risk allocation, whole of life cost savings, improved quality of services, access additional revenue sources, benefits for local economic and social development, and improved project scrutiny. New Zealand practitioners have emphasized greater efficiency in the use of resources. The research shows obstacles to be: political, social and legal risks, unfavorable economic and commercial conditions, high transaction costs and lengthy lead time, problems related to the public sector and problems with the private sector.

106. As more PPPs begin to operate, there have been many explorations on the factors that contribute to their success. Project success is often expressed by the quality of the product and project management success. Under this perspective, this article identifies and examines the critical success factors (CSFs) of PPP infrastructure projects and develops a life-cycle CSF framework with embedded “learning mechanisms.” The proposed framework will enable public and private sector stakeholders to possess an ameliorated understanding of the factors that are critical to successfully implementing a PPP contract strategy.

107. This paper proposes a quantitative methodology to guide governments’ decisions when choosing among PPP fiscal support mechanisms. Based on a comprehensive literature review, they establish a two-dimensional framework to evaluate fiscal support alternatives by comparing their effects on the financing costs of a project and the risk retained by a procuring government. The authors use a stochastic revenue projection model to quantify the revenue risk and the framework’s measurable indicators. They apply the framework using a hypothetical case study. The case results demonstrate that flexible-term contracts do little to increase project leverage, MRGs are most applicable to projects with significant revenue volatility, and APs are more appropriate in projects with lower revenue volatility. The framework allows governments to make more informed decisions about revenue risk sharing mechanisms to improve public budgeting and deficit control.

108. The increasing use of Public–Private Partnerships (PPP) arrangements in the provision of transport infrastructure seems to be a trend all over the world with a very particular incidence in Europe. The arguments supporting these public decisions are several and their validity varies with the different realities where these instruments are applied. The paper highlights the critical issues around the design and implementation of PPPs in the transportation sector and makes a brief presentation of the rationale behind the structure of papers presented in this special issue.

109. This presentation discusses key facts about why airport PPPs are growing, regional development and PPP trends, and outlooks for the future.

110. This paper studies the effects of airport ownership (private vs. government) on welfare in the presence of airport complementarity, where each airport is located in a different country. Considering Cournot competition in the airline market, the unique Nash equilibrium is such that the two countries privatize their airports, even though both countries are better off, from a welfare perspective, with public (government-owned) airports. Considering a differentiated Bertrand competition in the airline market, the same result prevails if the cross-price elasticities are sufficiently high, otherwise the symmetric government-ownership of airports may also be a Nash equilibrium.

111. This paper analyzes whether the two tasks of building infrastructures which are socially useful in providing public services and managing these assets should be bundled or not. When performance contracts can be written, both tasks should be performed altogether by the same firm if a better design of the infrastructure helps also to save on operating costs. Otherwise, tasks should be kept apart and undertaken by different units. In incomplete contracting environments we isolate conditions under which either the traditional form of public provision of services or the more fashionable public–private partnership emerges optimally. The latter dominates when there is a positive externality and the private benefits from owning assets are small enough. Finally, the paper studies how incentive schemes are modified under the threat of capture of the decision-makers. Much of the gains from bundling may be lost in this case.

112. This guide was developed for state and local officials in the State of Florida. It was designed to inform state and local government officials and administrators about the tools of contracting and public-

private partnerships. The guide provides advice for thinking about both the policy issues as well as the procurement and implementation issues associated with these tools. The guide includes case study examples illustrating the current use of contracting and public-private partnerships.

113. This paper explores the perceptions that a variety of PPP stakeholders have about PPP usage to deliver transportation infrastructure in the U.S., including stakeholders from fields at times overlooked in PPP literature but that are key to these transactions, such as professionals in legal, banking and finance, and concessionaire organizations. The paper reports the main findings from a survey taken by 101 professionals, with responses classified based about benefits, barriers, and valuation of PPPs vary depending upon the respondent's work type, location, and especially whether they had previous experience with PPPs. While this is not surprising, in some cases, such variations in perceptions were unexpected in both type and magnitude. It is understandable that some misperceptions still exist among PPP stakeholders due to various reasons, yet, some responses showed deep misunderstandings, fears, or unrealistic expectations about PPPs. The fact that respondents were targeted because of their assumed familiarity with these transactions is worrisome and it validates recommendations in the literature, as well as from respondents of this survey, to educate decision-makers, staff, and the public about what PPPs are, why they are needed, and what they can and cannot do.

114. The economic crisis in most developed countries is fostering the search for new models for infrastructure planning and management. There is great uncertainty surrounding these investments and, therefore, it is necessary to capture the latent value from infrastructure projects. The principle is that the project should have the necessary flexibility to adapt to future changes, i.e., at the design stage it is necessary to incorporate flexible options that would allow the infrastructure and/or the service to be adapted to changes. This paper focuses on contextualizing this concept as well as characterizing real options and identifying different areas of application to showcase the broad range of the different fields that make use of this tool. Moreover, the case study which regards a large infrastructure – an airport – will allow quantifying the economic value of some options supported in real options theory.

115. This paper provides a simple theoretical model to explain the mechanism whereby the privatization of international airports can improve welfare. The model consists of a downstream (airline) duopoly with two inputs (landings at two airports) and two types of consumers. The airline companies compete internationally. This study shows that the outcome in which both airports are privatized is always an equilibrium, whereas that in which no airport is privatized is an equilibrium only if the degree of product differentiation is large. The paper also discusses airport congestion problems within the model framework.

116. Air navigation service providers (ANSPs) play a critical role in the operation of a modern economy. Many countries have restructured their ANSPs by granting managerial and financial autonomy and creating new mechanisms for regulation and accountability to major consumers of air navigation services. These reforms have exemplified principles often associated with the New Public Management. The United States is the major exception to this international trend. Commercialization has allowed significant improvements in service quality without substantial increases in cost of service or erosion of safety standards. Other public interest considerations have also been protected. These performance benefits can be attributed to key decisions on the governance of new air navigation service organizations.

117. This paper argues that as communities attempt to confront current economic challenges, P3s are steadily becoming a viable delivery mechanism in the financing of civic projects, especially large, complex undertakings in the transportation sector.

118. This article considers the micro- and macro-economic benefits and costs of PPPs and some implications of implementing new international accounting standards. If public sector financial costs are forced to move 'on balance sheet', then there are likely to be impacts on the use in PPPs by governments and other public bodies. This may move the basis of PPP choice towards a more level playing-field with other financing sources, potentially give a more realistic measure of future public commitments and liabilities and reduce incentives to use PPPs for budget enlargement. There may be a refocusing upon the potential efficiency gains of PPPs and a reduction in their use, in some cases.

119. This paper seeks to examine the use of key performances indicators (KPI) based on the analysis of critical success factors (CSF) for monitoring of PPP transport projects from the perspective of different stakeholders. The list of stakeholders' performance objectives including CSF was defined using the brainstorming technique applied to group of experts in PPP transport sectors and refined through literature review. Input of the expert group was validated against a feedback from a respective survey. Three main groups of stakeholders were identified: public sector, private sector, and users. Finally, the review and comparative analysis of existing KPIs in PPP transport projects was performed based on stakeholders' objectives and project attributes using the "frequency of mention" approach. The paper introduced a two layers approach for the assessment of PPP projects. The first stage was based on evaluation of project ultimate objectives from the standpoint of each stakeholder, i.e. profitability for private sector, effectiveness and value for money for public sector, and level of service for users. An adjusted and weighted combination of fulfillment of the specific stakeholder objectives leads to an overall approach (second layer) of describing a PPPs success or failure.

120.

121. This paper provides a complete and proper evaluation of project delivery that incorporates many considerations that provide a more comprehensive look at the total costs associated with procurement than is traditionally conducted. While this assessment of each option is a more complex process than traditionally performed, the potential benefits that can be achieved make its use attractive. The analysis can expose the potential benefits and drawbacks to both project delivery options, and choosing the right option for each scenario may make the difference between being able to deliver a project and leaving needs unmet.

122. This article aims to demonstrate the importance of establishing pro-competition rules in the concession of multiple airports to private companies by describing the recent Brazilian experience. More specifically, it addresses: (i) how the economic literature deals with potential competition among different airports, and how this competition was dealt with in the concession programs of Australia, Mexico and the United Kingdom; and (ii) Brazil's recent experience with airport concessions, where international benchmarking led to cross-ownership restrictions. As a conclusion, this paper defends that governments should design regulatory restrictions that account for the existence of competition among airports. Nevertheless, these restrictions must be carefully planned and designed to achieve their goals.

123. Public-private partnerships (PPPs) allow private companies to build, own and operate public projects such as schools and hospitals on behalf of the public sector. PPP contracts commonly require the private agent to take responsibilities for the performance of the asset over a long term, at least for a significant part of its useful life, so that efficiencies arising from long-term investment and asset management can be realized. However, the evidence is finely balanced on the effectiveness of such initiatives in obtaining the intended goals. This brings to the fore the challenge of designing and implementing innovative partnership plans to manage public services more effectively. More emphasis needs to be placed on strategies for the transfer of risk for the successful conclusion of PPP contracts.

124. This Master's Thesis examines claims by identifying the sources of supply and demand for Water, Sanitation, and Health (WASH) PPPs. Drawing from the World Bank Private Participation in Infrastructure database, the research discovers that most projects are found in middle-income economies, with investment stemming primarily from public – rather than private – partners. The data also reveals that despite being touted as a panacea for development and growth, since the 1990s PPPs are responsible for providing only 11.12 percent of gained water access. Given the high cost of project cancellation and distress in the water sector (20 percent of total investment), the thesis also explores the Critical Success Factors (CSFs) that determine project success. A thorough literature review based on both outcome- and output-based project metrics revealed a total 13 CSFs. The thesis concludes that given the high economic, political, and social requirements of these partnerships, in its present form, the management approach is not an appropriate solution for promoting WASH infrastructural growth in developing economies.

125. This paper studies the capacity and pricing choice of two congestible airports in a multi-airport metropolitan region, under transition from a pure public, centralized airport system to partial or full privatization. The paper develops analytical models to investigate three privatization scenarios: public–private duopoly, private–private duopoly, and private monopoly. The findings conclude that airports follow the same capacity investment rule as prior to privatization when capacity and pricing decisions are made simultaneously. Pricing rule after privatization becomes more complicated, with additional factors having an upward effect on the privatized airport(s) and a downward effect on the remaining public airport.

126. The overall goal of this paper is to enhance infrastructural projects delivery in Nigeria. The primary data consists of survey questionnaires, drawn based on the identified factors on existing literature on critical success factors (CSFs). The study showed that well organized and committed public agency; social support; project technical feasibility and multi-benefits objectives are the CSFs that are most important to the private investors. On the other hand, factors such as transparency in the procurement process; shared authority between public and private sector; thorough and realistic assessment of the cost and benefits; commitment and responsibility of public and private sector and strong and good private consortium are the CSFs that are most important to the public clients. The results indicated that there was no significant difference in the suitability of PPP for execution of infrastructural projects delivery. This shows that PPP is suitable for all types of infrastructural projects.

127. The Critical Success Factors for Public–Private Partnership is a major research interest worldwide therefore this paper aims to methodically review studies on the CSFs for implementing PPP from some selected top tier academic journals from 1990 to 2013 (years inclusive). The search results indicated an increased research interest in the exploration of PPP CSFs since 1990. The mostly identified CSFs are risk allocation and sharing, strong private consortium, political support, community/public support and transparent procurement. It was further noticed that Australia, the U.K., China and Hong Kong have been the countries of focus for most research studies on PPP CSFs. Finally, the research approaches adopted are case study, questionnaire survey and mixed methods. The findings revealed provide an overview of CSFs for PPPs in order to enhance future implementations. Moreover, a checklist of CSFs for PPPs has been developed, which could be adopted for further empirical studies.

128. This paper focuses on measuring and comparing productive efficiency and profitability among airports owned and operated by government departments, 100% government-owned corporations, independent airport authorities, mixed enterprises with government majority ownership and mixed enterprises with private majority ownership. There is strong evidence that airports with government majority ownership and those owned by multi-level of government are significantly less efficient than

airports with a private majority ownership. There is no statistically significant evidence to suggest that airports owned and operated by US government branches, independent airport authorities in North America, or airports elsewhere operated by 100% government corporations have lower operating efficiency than airports with a private majority ownership; airports with a private majority ownership achieve significantly higher operating profit margins than other airports. These results suggest that private–public–partnership with minority private sector participation and multi-level governments' ownership should be avoided, supporting the majority private sector ownership and operation of airports.

129. This article studies the effects of ownership forms on airports' cost efficiency by applying stochastic frontier analysis to a panel data of the world's major airports. Key findings are: (a) Countries considering privatization of airports should transfer majority shares to the private sector; (b) Mixed ownership of airport with a government majority should be avoided in favor of even 100% government owned public firm; (c) US airports operated by port authorities should consider to transfer ownership/management to independent airport authorities; and (d) Privatization of one or more airports in cities with multiple airports would improve the efficiency of all airports.

130. This article explores the risks and rewards associated with public-private partnership (“P3”) initiatives and provides a framework through which these initiatives can achieve success by providing attractive returns to private investors including investment funds, developers, operators and construction contractors, while creating an optimal partnership mechanism for the public agency. In light of the substantial risks inherent in P3 initiatives, this article offers advice on how to master the confluence of government affairs and political issues that are unique to each P3 initiative and provides a “Roadmap for Success” that can be used as a methodology for private investors to minimize risk exposure and optimize their returns on investment.

131. The Port Authority of New York and New Jersey (Authority) has released this Project Briefing Book (PBB) as part of its Request for Qualifications (RFQ) (#31224) for the LaGuardia Airport Central Terminal Building Replacement Project (Project). The PBB is for use by entities considering submitting a Statement of Qualifications (SOQ) in response to the RFQ. Terms not otherwise defined herein shall have the same meaning as set forth in Section 1.2 (Definitions) of the RFQ. The PBB provides information on the overall LGA Redevelopment Program (Program), as described herein

132. This paper provides the results of a national survey on the state-of-practice of PPPs in transportation in the United States, and to provide a comprehensive overview of research on U.S. transportation PPPs in the areas of economics, law, and public opinion. Additionally, this paper offers guidance to help organize and guide research in U.S. transportation PPPs in the future.

133. This paper is concerned with the performance of the former British Airports Authority (BAA) before and after privatization, and more specifically with its technical efficiency. BAA was privatized under the Airports Act of 1986, in July 1987. The paper considers to what extent technical efficiency changed following privatization using data envelopment analysis. The study finds that privatization had no noticeable impact on technical efficiency, and that technical efficiency within BAA is a composite of varying performance across the different airports operated by the company over time.

134. This study explores the two types of highway concession--avenue-risk and availability payment--in depth, drawing on recent experiences with both revenue risk and availability payment concession projects in the highway sector. It includes a discussion of where AP concessions can be a good fit for highway projects, as well as the limitations of this approach. The study is intended as a guide for policymakers interested in making wise use of DBFOM concessions of both types

135. The study argues that the Port Authority of New York and New Jersey needs dramatic reform. Major transportation infrastructure requires ongoing investment: adding capacity as needed, renewing and replacing aging facilities, and keeping pace with the latest technologies. That is simply not possible until the PA abandons its decades-long practice of common-pool funding and extensive cross-subsidies, and moves instead toward infrastructure facilities funded by dedicated revenue streams and facility-specific accountability. The mechanism to do so is long-term public-private partnerships (P3s), which today mobilize hundreds of billions of new capital for infrastructure around the world. The end game is that the PA would no longer own or operate transportation infrastructure. The P3 model would produce major benefits including added runway capacity at Kennedy and Newark Airports, the reconstruction and expansion of aging bridges and tunnels, more-productive seaports, a greatly reformed PATH (Port Authority Trans-Hudson) rapid-transit system, and a sensible replacement of the PABT (Port Authority Bus Terminal).

136. This report provides an overview of airport privatization that has taken place both internationally and nationally. It also discusses airport security in the US and air traffic control

137. This bulletin focuses on reforms to the nation's more than 500 commercial airports. These airports are owned by state and local governments, but the federal government provides aid for capital improvements. The aid and other federal policies create hurdles to restructuring along the lines of reforms abroad. As a result, airports are missing out on innovations that would benefit the traveling public. The bulletin argues that airports should be self-funded by revenues from passengers, airlines, concessions, and other sources. Federal subsidies should be phased out, and state and local governments should privatize their airports to improve efficiency, competitiveness, and passenger benefits.

138.

139. This white paper outlines the many benefits of using a P3 model to complete infrastructure projects. It also advocates for the federal and state governments to standardize their P3 procurement procedures.

140. This report argues that, absent significant increases in public funding, P3s will likely be the primary model for building new highway capacity in heavily congested urban areas in the decades ahead. Given the economic and social toll caused by traffic congestion in the U.S. and the enormous unmet demand for new highway capacity to facilitate freight movement in an increasingly competitive international market, P3 projects should be aggressively encouraged and supported.

141. This study analyzes the determinants of stress in public-private partnerships (PPPs) in infrastructure investment. While project failures seldom occur, there are many stresses that hinder success. The empirical analysis in this study yields a number of surprising results: (i) strong growth and rigid currency regimes heighten risk by leading to adverse selection of proponents and moral hazard in project design; (ii) many of the World Bank's indices of governance quality lead to perverse outcomes, suggesting that new governance standards must be used to judge PPPs; and (iii) except for political risk guarantees, loans and equity from multilateral institutions have no effect on outcomes; however, political risk guarantees are rarely utilized, suggesting that they may need to be redesigned or marketed better to be more useful. The paper concludes with suggestions for policy improvements.

142. This study analyzes over 1400 publications from a wide range of disciplines over a 20-year period. It concludes that despite the scale and significance of the phenomenon, there is relatively limited conceptualization and in-depth empirical investigation. Based on bibliographic and content analyses, the study synthesizes formerly dispersed research perspectives into a comprehensive multi-dimensional

framework of public-private partnerships. In so doing, the study provides new directions for further research and practice.

143. This paper develops an empirical model of passenger demand for routes of airports subject to either imminent or recent privatization and investigates whether the privatization process produces a sequential impact over traffic. By employing a regression-based event methodology and controlling for fixed effects, price endogeneity and sample selection, the paper performs an econometric analysis of pre-privatization and post-privatization dynamic patterns of demand to infer the demand consequences of the major change in airport governance. A recent Brazilian airport privatization experience is used as a case. The main results suggest that privatization produced an overall increase in airline demand and that the airport notably recognized with the greatest demand potential and with the largest market penetration of a fast-growing low-cost newcomer had the highest estimated *ceteris paribus* effect of privatization on demand.

144. The author synthesizes the case-based research on public/private development projects to extract insights and lessons for planning, deal making, and performance, concluding by recommending the additional research that she considers most needed.

145. This research demonstrates an early stage life cycle evaluation of an infrastructure public-private partnership (PPP). It explicitly studies the value implications for the project partners. The discussion speaks to managers, policy-makers, and all those concerned with the development of infrastructure projects. The paper starts with an overview of the concepts central to the early stage life cycle evaluation of both general and PPP projects. It then presents the essential elements of the analysis of economic value. It further illustrates the analysis using a realistic case study of a hypothetical public-private partnership for developing and operating a major international airport.

146. This book provides a complete guide to understanding privatization. Contracting services, using franchises and vouchers, divesting government-owned businesses, privatizing infrastructure through public-private partnerships, reforming education, privatizing the welfare state, and overcoming opposition to privatization are discussed in detail. In addition, the book provides hundreds of examples from local, state, and federal government in the U.S. and other countries.

147. With reference to current practice in Hong Kong, this paper examines the major risks in implementing public sector works, and the ways that the application of public private partnership (PPP) can help to manage risks in project delivery. The example of Hong Kong Disneyland (KDLD) demonstrates how various major risks in committing to a PPP project are allocated and shared effectively between public and private partners. In this typical PPP project, it is found that allocation of site acquisition risk and legal and policy risks to the public sector is more effective while private sector could effectively allocate the design and construction risks, operation risks and industrial action risk to the private sector. Also, development risks, market risks, financial risks and force majeure could be shared effectively between the two partners. These results present valuable lessons for both the practitioners and researchers in application of PPPs to manage risks in delivering of public sector projects in other countries and regions.

148. This paper aims to identify strategies to increase transparency and accountability in large infrastructure projects delivered through public/private partnerships. The author studied the case of an award-winning public/private partnership to plan a rapid rail line in Vancouver by comparing confidential documents released after project approval to the information available while planning was underway. This paper finds that although this project followed many best practices for achieving accountable and transparent public/private partnerships, in some instances it kept unfavorable study

results from public view, limiting the potential for meaningful public involvement in the planning process. The paper identifies the following strategies to increase transparency and accountability in large infrastructure projects, including those delivered through private-public partnerships: (1) using a clear and narrow standard for what information should be kept confidential; (2) ensuring that public officials with responsibility for project decisions and their staffs have full access to all project information, including that not made public; (3) appointing a watchdog to see that these standards are upheld; and (4) implementing a decision process that allows public input and places the burden for proving that information should remain confidential on the entity making the request.

149. This paper examines the theoretical foundation that justifies the implementation of different PPP approaches to deal with urban rail projects. The paper then explains the reasons why a nonintegrated PPP approach was ultimately adopted for the expansion of Madrid's subway network to the airport. From the outcome of the tender and the present operation performance, we find that nonintegrated PPP contracts have important advantages for urban rail PPPs, particularly for conventional subway networks. These advantages are notable in terms of encouraging economies of scale and density, boosting competition, and reducing the financial costs.

150. Consequently, this paper reviewed PPP studies published in the six top journals in the construction field. The objectives are to compare the findings of the studies so as to provide insights for directing further PPP research and improving the existing practices of PPP projects. To achieve the review objectives, studies were first classified as either empirical or non-empirical. Empirical studies were further grouped under three themes: risks, relationships, and financing. Non-empirical studies were grouped under five themes: financing, project success factors, risks, and concession period. Suggestions for further research are risks, financing, contractual agreements, development of PPP models, concession periods, and strategies in choosing the right type of PPP.

151. Luis Muñoz Marín International Airport in San Juan, Puerto Rico, is now the only airport with a private operator under the provisions of the APPP. Increasing interest in airport privatization is likely to require many significant policy changes, including the following: making privatization more attractive to public-sector owners by facilitating the use of privatization revenue for non-airport purposes; providing similar tax treatment to bonds issued by public-sector and private sector airport operators, as public-sector operators now have access to less costly long-term finance than private operators; easing requirements for private owners to comply with assurances previously made by public-sector owners to obtain federal Airport Improvement Program (AIP) grants; accelerating the application and approval procedures for the APPP.

152. This digest explores the use of varying project delivery methods, including design-build, construction management at risk, and a variety of options considered public-private partnerships, through the examination of seven separate construction projects in various parts of the United States. The examinations of the seven selected projects are designed to show how particular, and often unique, problems were addressed in each project by utilizing a wide variety of procurement and delivery methods.

153. This guidebook addresses the following pertaining to small- and medium-sized P3 initiatives associated with public transportation: defines different types of small- and medium-sized P3 initiatives; identifies potential benefits and risks of different types of small- and medium-sized P3 initiatives; assists public transit agencies in identifying, evaluating, and screening opportunities for small- and medium-sized P3 initiatives; and identifies barriers and challenges to planning and implementing P3 initiatives and how they may be overcome. Eight case studies on small- and medium-sized P3s from across the United States were conducted and are presented in the report. They address P3s for capital

improvements, operations and maintenance, real estate, marketing agreements, and innovative technology. A P3 Project Screening Checklist accompanies the guidebook and can be found on the TRB website. It is an interactive Excel tool developed through interviews with public transit agencies and private entities. The research team used the lessons learned through the study to design a tool to present the user, the public transit agency, with an overall screening and evaluation of a P3 initiative. The guidebook is relevant to all public transportation modes.

154. Motives for private participation in airports are different. Similar diversity can be found in ways through which private sector participates in airport business. This paper is aimed at public-private partnerships in the world regions, providing regional quantitative data as well as the most interesting examples of airport public private partnership schemes.

155. This paper evaluates the influence of contracting out, or outsourcing, certain airport services and of commercial diversification strategy. Although most of the effort is being put towards applying non-parametric techniques in airport efficiency studies, we have chosen parametric methodology. We use a distance function, as it has known advantages. The findings show the positive contribution of outsourcing and non-aeronautical revenues on the efficiency of the Spanish airports' network.

156. This paper. Building on the evidence from constructive engagement and other consultations, the CAA has conducted its own analysis of the regulatory framework appropriate to each airport; the projections of airport traffic, service standards, costs and offsetting commercial revenues which together produce a projection of maximum allowed airport charge revenues; and the financial incentives to encourage investment and service performance to meet users' needs. Continuing investment is vital at Heathrow and Gatwick airports to meet the legitimate expectations and anticipated demands of passengers and airlines for safe, well-functioning terminals and efficient airfield infrastructure, which should provide the platform for better service delivery in the coming years. At both airports, terminal buildings have become tired, over-crowded and out-of-date.

157. This discussion paper draws upon past and current experience to examine different mechanisms used by public agencies for involving private developers during the early stages of a project delivered through a public-private partnership (P3). The discussion paper is structured in accordance with the three major stages in the project planning and development process – planning, procurement, and post-procurement – during which private parties may participate in and/or comment on a given project to improve its financial and technical feasibility and achieve other public sector objectives. The study relied on a literature review, interviews with P3 practitioners, and a review by P3 experts at a roundtable which identified the consultative and feedback mechanisms used during planning, procurement and post procurement; recommended introducing these types of activities earlier in the project development process to encourage private sector input; and identified approaches that have been effective in securing early input from the private sector to enhance opportunities for public-private partnerships.

158. This discussion paper aims to demystify infrastructure PPPs by explicitly describing the conditions under which a PPP can be a better choice for procurement over conventional methods from the perspective of how economists typically look at these issues. No single factor definitively informs whether a PPP is likely to yield higher benefits to society and the taxpayer than conventional procurement. Instead, a balance of elements – the project's characteristics, the economic environment in which the project is being developed, and the ability of the project sponsor to take certain actions – jointly determines whether a PPP's delivery and operation of the project is mutually beneficial to both the public and private sectors. This paper also describes important steps for a government sponsor to take before a project being procured through a PPP is started. An essential prerequisite to achieving the

potential net benefits of a PPP is for the government sponsor's to fully understand the project's characteristics and economic environment before initiating the procurement. In addition, successful PPP implementation requires executing a set of complementary best practices before the project gets underway. Not taking these steps may lead to higher costs, failure to meet performance targets later in the project's life cycle, and a misallocation of scarce public resources.

159. Since airports and seaports are operationally similar, this paper examines the literature and methods used to assess the effects of privatization in both types of infrastructure. The paper observes that the impact of privatization on performance depends not only on the degree of privatization but on the competition in the market. Following a 4-level specification commonly employed in the seaport literature that captures degrees of privatization, the paper estimates a stochastic frontier model for airport efficiency as a function of ownership. The paper concludes that airport authorities in the United States are equally as efficient as fully privatized airports elsewhere, due to a high degree of competition and fiscal independence from the other governmental entities. Additionally, while privatization may be an effective mechanism of introducing corporatization into infrastructures that are characterized by poor competition and direct government control, the airport authority appears to achieve the benefits of privatization in operation without actual transfer of ownership.

160. This article provides eight rules for government concerning the administration of public—private partnerships (P3s). The basis for these rules draws on transaction cost economics. The article outlines a positive theory perspective of P3s that consider the divergent goals of the partners in a P3 (the profit maximization goals of private sector participants, and the budgetary and political goals of public sector participants). This section throws light on the adoption and outcomes of P3s. Then, it shows that many aspects of the theory are illustrated in the Metronet (the London Underground P3) case, which went bankrupt in 2007. Finally, the article proposes rules that governments should follow in the P3 process if they wish to avoid high transaction costs and poor P3 outcomes.

161. This paper explores the question of whether privatized airports earn their cost of capital by comparing the financial performance of ten publicly quoted European airports. The majority of airports sampled generated a negative economic value added, with traffic induced spending as the single most influential factor. Concludes that to improve the value-added margin by optimal phasing of investment activities, gearing of the balance sheet, and financing of capital expenditure.

162. This law review provides a detailed review of PPP legal framework in a variety of countries. It also discusses best practices implemented by private professional and government authorities from around the world.

163. This paper evaluates the outcomes of 115 Small Community Air Service Development (SCASD) grantees. It concludes that each year, fewer than half of the grant recipients were successful in meeting their proposal goals. Careful consideration is needed to determine whether to reform the SCASDG program to more successfully support the development of small community air service.

164. This article explores whether private airport competition could lead to more efficient charges that improve travelers' welfare, increase airlines' profits, and enable the airports to be profitable. It uses the San Francisco Bay Area airports as a case study and identifies conditions necessary to meet these outcomes.

165. This study overviews the establishment of the TSA after 9/11. It outlines the benefits of introducing performance contracting, including comparison data on productivity and cost savings estimates. Then, it provides information on European countries.

166. This paper reviews the general policy issues that arise for the public sector when considering adopting the PPP procurement route. It also offers a systematic and integrated approach to financing PPPs within the public-policy framework.

167. This empirical study analyzes the determinants of PPPs in infrastructure projects using the World Bank's Private Participation in Infrastructure database for developing countries. Findings show that PPPs are more common in countries whose governments suffer from heavy debt burdens, where aggregate demand is sizable, and where markets are large enough to allow for cost recovery. Macroeconomic stability is essential.

168. This study identifies important criteria for selecting the right private-sector partner. Through a series of analyses, the study facilitates the formulation of a multicriteria best value source selection methodology for PPP projects.

169. To develop an efficient procurement protocol, this study identifies, analyzes, and categorizes various critical success factors (CSF) for PPPs based on a public-private win-win principles and a systematic research approach. The study concludes that respondents from the industrial sector and the academic sector similarly rank the CSFs.

170. This paper proposes a systematic framework for the delivery of public works and services through PPPs in general. This framework integrates four broadly divided stages that repeat over time: design of a workable concession; competitive concessionaire selection; financial regulation; and periodic reconcession and rebidding. The paper concludes that while government regulation address changing conditions for efficient operations, competitive concessionaire selection enhances innovation and efficiency.

171. This article provides a survey of three areas with recently derived important insights: airport congestion and pricing; airline alliances; and airport privatization and regulation. It presents main ideas in a unifying framework and elaborates on future research avenues.

Table 2. News Articles and Blog Posts

Title	Source	Topic	Year	Type	URL
<i>Policy Check-In: Status of Airport P3s in the U.S.</i>	Bipartisan Policy Center	General	2017	Blog post	https://bipartisanpolicy.org/blog/policy-check-in-status-of-airport-p3s-in-the-u-s/
<i>PPPs could reinvigorate US airport privatization</i>	CAPA Centre for Aviation	General	2014	Blog post	https://centreforaviation.com/insights/analysis/ppps-could-reinvigorate-us-airport-privatisation-191920
<i>Does Airport Privatization Have a Future in the U.S.?</i>	Eno Center for Transportation	General	2017	Blog post	https://www.enotrans.org/article/airport-privatization-future-u-s/
<i>ATC Privatization Pitfalls: Point by Point</i>	Aircraft Owners and Pilots Association	General	2017	Blog post	https://www.aopa.org/news-and-media/all-news/2017/july/12/get-the-facts-about-atc-privatization
<i>The pros and cons of privatizing airport security</i>	NPR - Marketplace	General	2016	Article	https://www.marketplace.org/2016/08/04/business/pros-and-cons-privatizing-airport-security
<i>Long airport TSA lines cause pain, but privatization may not be cure</i>	Chicago Tribune	General	2016	Article	http://www.chicagotribune.com/news/columnists/ct-tsa-privatization-getting-around-20160522-column.html
<i>Cities Consider Privatizing TSA to Speed up Checkpoints, But Would It?</i>	NPR	General	2016	Article	https://www.npr.org/2016/05/26/479590079/cities-consider-privatizing-tsa-to-speed-up-checkpoints-but-would-it
<i>Should Airports Privatize Security to Avoid Long Lines?</i>	The Atlantic	General	2016	Article	https://www.theatlantic.com/national/archive/2016/05/long-airport-lines/484550/
<i>Airport Screening: TSA Versus Private Security Firms</i>	Law and Liberty	General	2016	Article	http://www.libertylawsite.org/2016/05/19/airport-screening-tsa-versus-private-security-firms/
<i>So What's the Deal with Air Traffic Control Reform</i>	Wired	General	2017	Article	https://www.wired.com/2017/06/trump-air-traffic-control-explained/
<i>Effort to Privatize Airports Fails to Take Off</i>	Wall Street Journal	General	2017	Article	https://www.wsj.com/articles/effort-to-privatize-airports-fails-to-take-off-1499166004
<i>In Chicago, Private Firm is to Run Midway Airport</i>	New York Times	Chicago Midway Airport	2008	Article	http://www.nytimes.com/2008/10/01/us/01midway.html
<i>Chicago Halts Airport Lease</i>	Wall Street Journal	Chicago Midway Airport	2013	Article	https://www.wsj.com/articles/chicago-nears-midway-airport-lease-deal-1378418141

Title	Source	Topic	Year	Type	URL
<i>How parking meters killed privatization of Midway Airport</i>	Washington Post	Chicago Midway Airport	2013	Article	https://www.washingtonpost.com/blogs/govbeat/wp/2013/09/13/how-parking-meters-killed-privatization-of-midway-airport/?utm_term=.209287c85ac0
<i>Chicago Midway Airport Privatization: Anatomy of a US airport lease</i>	CAPA Centre for Aviation	Chicago Midway Airport	2013	Blog post	https://centreforaviation.com/insights/analysis/chicago-midway-airport-privatisation-anatomy-of-a-us-airport-lease-99948
<i>Denver secures \$1.8 billion public-private partnership for airport</i>	American City & County	Denver Int'l Airport	2017	Article	http://americancityandcounty.com/privatization-outsourcing/denver-secures-18-billion-public-private-partnership-airport
<i>DIA would pay more than \$1 billion over 34 years in deal for massive terminal renovation, chief says</i>	Denver Post	Denver Int'l Airport	2017	Article	http://www.denverpost.com/2017/06/02/denver-international-airport-terminal-renovation/
<i>St. Louis wins U.S. approval to explore airport privatization</i>	Reuters	St. Louis Lambert Airport	2017	Article	https://www.reuters.com/article/us-missouri-airport-privatization/st-louis-wins-u-s-approval-to-explore-airport-privatization-idUSKBN17Q0VA
<i>St. Louis begins to weigh potential benefits, risks of privatizing Lambert</i>	St. Louis Post-Dispatch	St. Louis Lambert Airport	2017	Article	http://www.stltoday.com/news/local/govt-and-politics/st-louis-begins-to-weigh-potential-benefits-risks-of-privatizing/article_bfebab34-5280-558a-bc01-16d8b690f892.html
<i>St. Louis officials seek advisers to guide possible privatization of Lambert</i>	St. Louis Post-Dispatch	St. Louis Lambert Airport	2017	Article	http://www.stltoday.com/news/local/govt-and-politics/st-louis-officials-seek-advisers-to-guide-possible-privatization-of/article_7571d217-9cb3-5f28-a803-230c1c58ce38.html
<i>Privatizing Lambert airport: Lots of promise, limited success elsewhere</i>	St. Louis Business Journal	St. Louis Lambert Airport	2017	Article	https://www.bizjournals.com/stlouis/news/2017/03/31/privatizing-lambert-airport-ots-of-promise-limited.html
<i>Could privatizing airport services help resolve infrastructure woes?</i>	Christian Science Monitor	St. Louis Lambert Airport	2017	Article	https://www.csmonitor.com/Business/2017/0427/Could-privatizing-airport-services-help-resolve-infrastructure-woes
<i>JetBlue Going Electric at JFK Terminal Under Public-Private Partnership</i>	Next-Gen Transportation News	JFK Int'l Airport (NYC)	2017	Article	https://ngtnews.com/jetblue-going-electric-jfk-terminal-public-private-partnership
<i>Port Authority Board Votes to Move Forward on LaGuardia Airport Development</i>	Port Authority of NY & NJ	LaGuardia Int'l Airport (NYC)	2015	Press release	http://www.panynj.gov/press-room/press-item.cfm?headLine_id=2218

Title	Source	Topic	Year	Type	URL
<i>Cleared for Takeoff: LaGuardia's \$4B Venture</i>	Construction Equipment Guide	LaGuardia Int'l Airport (NYC)	2015	Article	https://www.constructionequipmentguide.com/cleared-for-takeoff-laguardias-4b-venture/25929
Public-Private Partnership Policy Casebook – LaGuardia Central Terminal	wikiBooks	LaGuardia Int'l Airport (NYC)	2017	Info page	https://en.wikibooks.org/wiki/Public-Private_Partnership_Policy_Casebook/LaGuardia_Central_Terminal
<i>Stewart Airport – National Express Group is packing its bags</i>	Times Herald-Record	Stewart Airport (New York)	2006	Article	http://www.recordonline.com/article/20060929/NEWS/609290323
Public-Private Partnership Policy Casebook – San Juan	wikiBooks	LMM Int'l Airport - Puerto Rico	2017	Info page	https://en.wikibooks.org/wiki/Public-Private_Partnership_Policy_Casebook/San_Juan
<i>San Juan's Luis Munoz Marin International Airport helping Puerto Rico tourism promotion efforts</i>	Baltimore Post-Examiner	LMM Int'l Airport - Puerto Rico	2013	Article	http://baltimorepostexaminer.com/san-juans-luis-munoz-marin-international-airport-helping-puerto-rico-tourism-promotion-efforts/2013/10/14
<i>San Juan Airport Privatization is Complete</i>	LeighFisher	LMM Int'l Airport - Puerto Rico	2013	Project report	http://www.leighfisher.com/global-experience/san-juan-airport-privatization-complete
<i>San Juan Int'l Forges New Territory with Public-Private Partnership</i>	Airport Improvement	LMM Int'l Airport - Puerto Rico	2014	Article	http://www.airportimprovement.com/article/san-juan-intl-forges-new-territory-public-private-partnership