

(De-)regulation of the European Ramp Handling Market – Lessons to Be Learned from an Institutional Perspective?

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Abstract

Ten years have passed since the European Commission obliged its member states to open their national handling markets to competition. This paper analyzes whether the policy has allowed airlines to design efficient contractual and organizational solutions with their ramp handling suppliers. Applying transaction cost economics as the lens of analysis, we propose that the award of temporary limited operating licenses to new entrants results in inferior economic performance. The presented econometric results on the duration of 42 ramp handling contracts and a qualitative case study on the award practices at German airports are largely supportive of this proposition.

Keywords: Transaction cost, contract, deregulation, air transport, ramp handling

JEL: D23, L93, L42

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1 Introduction

With the *Directive 96/67/EC on access to the ground handling market at community airports* (hereinafter referred to as the ‘Directive’) the European Commission aimed to introduce competition to national handling markets. At the time the Directive was passed in 1996, ramp handling in most member states was provided exclusively by either (public) airport operators (e.g. German airports) or by national flag carriers (e.g. Iberia in Spain). As a result of the decision to introduce competition only gradually (Soames 1997), heavy-handed governmental intervention continues in these countries to the present day. Since the number of entrants is still limited, incumbents often face no more than a single “new” handling competitor. Furthermore, new entrants are granted temporary licenses with a maximum duration of seven years to operate at the respective airport. Since 2003, the European Commission has been in discussion with interest groups on a revision of the Directive. While the airlines are advocating a pro-competitive shift in the revision, airports active in the handling market as well as labor unions are attempting to preserve the status quo.

Existing literature on the liberalization of the European ground handling market has focused on the question of whether new entrants have equal access to essential airport infrastructure facilities (Kunz 1999). Other authors have discussed the making of the Directive, i.e. the ex-ante political processes and the legal basis (Soames 1997), and its implementation into national laws (see Einem 2000 for an analysis of its implementation in Germany). More recent work has examined the Directive’s impact on market structures, prices and quality levels at selected European hub airports (Templin 2006).

The present paper takes another course. Its main focus is on whether airlines have succeeded in implementing efficient contractual and organizational choices (e.g. long-term contracts, joint ventures, vertical integration) with their handling suppliers. Transaction Cost Economics (TCE) argues that both production and transaction costs are minimized when an efficient alignment between (handling) transaction and governance structures¹ exists (Riordan and Williamson 1985). Partners in the exchange will seek an efficient organizational solution of this kind in their pursuit of joint profit maximization (Ghosh and John 1999).

While the Commission has named “reduced operating costs” and “increased service quality” as its primary objectives in introducing competition, it has simultaneously introduced constraints on the contractual and organizational decisions between airlines and ramp handlers. Our objective is not to scrutinize the ex-ante political processes or the resulting Directive in its current form. Instead, we use transaction cost theory to develop propositions on the transactional efficiency of the existing rules pertaining to the award of temporary restricted operating licenses to new entrants.

Based on our empirical results, we argue that hub-and-spoke carriers and their ramp handling suppliers at the respective hub and large secondary airports choose long-term contracts and other specialized organizational forms to economize on transaction costs. Our review of 12 tender processes for operating licenses at German airports shows that the present institutional arrangement by which operating licenses are awarded is a source of considerable transaction costs. Additionally, licenses artificially constrain contractual choices between handlers and airlines, resulting in reduced investment levels for new

¹ The term *governance* is defined as a “short-hand expression for the institutional framework, in which contracts are initiated, negotiated, monitored, adapted, enforced and terminated” (Palay 1984, p. 43)

entrants. We argue that the award of temporary licenses runs contrary to the Directive's aims and should be abolished in a revision.

Consequently, the contributions of this paper are twofold. First, it provides policy makers with an established and empirically tested theoretical basis—namely, transaction cost theory—to better understand the deregulation of the handling market. Second, drawing on a unique set of data, this work presents an empirical analysis of contract duration based on a sample of 42 ramp handling contracts within the European Union. The results are supplemented by recent experiences with the award of operating licenses at German airports.

The remainder of the paper is organized as follows. Section 2 outlines the contracting problem and the rules on licensing in the EU Directive. Our analytical framework and the propositions derived are presented in Section 3. Section 4 introduces the empirical model on contract duration. The econometric results are supplemented with qualitative evidence on the award of operating licenses at German airports in Section 5. Section 6 concludes with a discussion of results and briefly outlines policy recommendations for an alternative licensing arrangement.

2 Contracting Problem and Licensing Rules

The market for ground handling services encompasses a range of services: (i) ramp handling, (ii) passenger handling, (iii) oil & fuel handling, (iv) mail & freight handling, and (v) baggage handling. Our analysis is restricted to the provision of ramp handling services, which continues to be the most heavily debated type of service in the revision of the Directive. Ramp handling services are primarily the (un)loading of the aircraft and the transportation of passengers and baggage.

Handling companies are involved in two major transactions, which are embedded in the European as well as the national institutional environment. The first of these takes place in the upstream market between ground handler and airport for the usage of central infrastructure facilities (CP#1 in *Figure 1*). The Directive describes the baggage sorting system, de-icing plant, and water purification system as essential facilities². Discrimination-free access to these facilities in the presence of a forward-integrated airport handler has been discussed extensively (see Kunz 1999, Wolf 2003, pp. 284-298). It is fair to say that many of the regulations contained in the Directive are intended to deal with this issue.

[Figure 1 about here]

The second transaction in the actual provision of handling services occurs between airline and ground handler in the downstream market (CP#2 in *Figure 1*). The variety of observed governance arrangements—ranging from short to long-term contracts and backward integration of airlines (self-handling)—renders this industry an interesting subject for a TCE-based study. Since the development of transaction cost economics by Oliver Williamson and others (Klein, et al. 1978, Williamson 1971, 1983, 1985, 1991), classic applications include the make-or-buy decision of firms and the design of contracts or contractual terms.³ However, the specific nature of the European ramp handling market—that is, the influence of regulation on the dyadic governance decision—warrants

² The Directive states that the complexity, cost and environmental impact of these assets prevents their division or duplication (Council Directive 1996, Article 8).

³ Groundbreaking empirical studies include those of Teece and Monteverde (1982) and Masten (1984) on the make-or-buy decision, Paul Joskow's (Joskow 1985, 1987) studies on the duration of coal contracts, and Crocker and Reynolds' (1993) study on contractual completeness. Furthermore, transaction cost theory has

some qualifications (more on this later). We first turn to a brief introduction of TCE's main predictions on economic organization.

At the theory's core stands the discriminating alignment hypothesis, to which the theory owes its predictive power. It states that "transactions, which differ in their attributes, are aligned with governance structures, which differ in their cost and competencies, in a discriminating (mainly transaction-cost-economizing) way" (Williamson 1991, p. 277).

The ideal transaction in law and economics is most efficiently managed in markets. Thus, Williamson (2002, p. 183) claims: "try markets, try hybrids, and have recourse to the firm when all else fails". Conditions of asset specificity⁴ take on a dominant role in explaining efficiency differentials between these three generic governance structures. Investment in specific assets restricts their re-deployability to alternative uses and thus generates quasi-rents⁵ in dyadic exchange relationships. As mutually dependent partners value continuity in their relationships, they design safeguards ex-ante to cope with contractual hazards ex-post. Besides the protection of quasi-rents, governance modes differ in their adaptive capabilities in the face of uncertainty, and in the costs of performance measurement they entail.

In anticipation of our empirical study, we follow the TCE logic applied to the example of long-term contracting. Handling agents and airlines investing in relationship-specific assets exploit gains from trade. Based on the assumption of bounded rationality and

informed the discussion on franchising of natural monopolies (Williamson 1976), utility regulation (Crocker and Masten 1996), and public ownership (Williamson 1999).

⁴ Asset specificity takes the form of site specificity, physical asset specificity, dedicated asset specificity, human capital asset specificity, brand capital specificity (Williamson 1985), temporal specificity (Masten, et al. 1991) and contractual specificity (Pirrong 1993).

⁵ Quasi-rents are defined as the excess of an asset's value over the value of its best alternative use or user (Klein, et al. 1978). This excess of returns keeps the asset in its current use, and can include pure rents as well (Holmstrom and Roberts 1998).

opportunism⁶, economic actors are tempted to achieve individual gains in the relationship by influencing the distribution of quasi-rents. In consequence, gains from trade are wasted through the cost of ex-post bargaining and related responsive actions to opportunistic behavior. Farsighted actors avoid the cost of repeated bargaining by designing ex-ante contractual safeguards, among which duration has been shown to be key (Joskow 1987). An increase in contract duration (i) reduces exposure to opportunistic behavior of the contracting parties and (ii) saves on repeated negotiation costs. However, a longer-term contract results in “the information cost, the negotiation cost, and the ‘potential mal-adaptation cost’ or the ‘re-negotiation cost’ of being trapped in a bad contract” (Saussier 1999, p. 6). Summing up, while asset specificity increases contract duration, uncertainty decreases contract duration. At some threshold point, the severity of contractual hazards and uncertainty turns the internal organization of the transaction (hierarchy) into the least-cost governance mode.

A large number of empirical tests have corroborated TCE’s predictions on the use of long-term contracting, hybrid modes, and vertical integration.⁷ The great majority of empirical studies are indirect tests, linking observed governance forms to the transaction attributes asset specificity and uncertainty. These indirect tests are based on two major assumptions (Masten 1993, Yvrande-Billon and Saussier 2005).

- (1) All observed organizational and contractual choices are efficient, since competition is strong enough to sort out inefficient governance modes

- (2) Parties are not constrained in designing contractual and organizational solutions

⁶ Contingent claim contracts are not feasible, since economic actors are “intendely rational, but only limited to do so” (Williamson 1985, p. 45). Incomplete contracts and opportunism, i.e. “self-interest seeking with guile” (Williamson 1985, p. 47), result in contractual hazards in the contract execution period.

These assumptions appear inapplicable to most of the European ramp handling markets prior to the Directive. Taking a TCE perspective on economic performance, deregulation should aim at providing an institutional environment which facilitates a (re)alignment between ramp handling transactions and governance structures in the European market.

We proceed as follows in this section. First, we discuss sources of mutual dependency and uncertainty, and the costs of measuring performance in the supply of ramp handling services. Then we introduce the set of rules in the Directive addressing the award of operating licenses.

2.1 Asset Specificity and Uncertainty in Ramp Handling

Mutual dependence and the resulting need for specialized governance structures depends primarily on the contracting location in the airline's network (Fuhr 2006, Fuhr and Beckers 2006, Langner 1995). In particular at hub airports—and to a minor degree at large secondary airports⁸—hybrid structures (complex contracts supplemented with arrangements aimed at enforcing the contracted quality levels and coordinating the transaction) or even hierarchical structures are employed by European hub-and-spoke carriers for the organization of ramp handling services. At smaller spoke airports, on the other hand, ramp handling is procured via standardized short to mid-term contracts. Alternative governance structures at these contracting locations are matched to the

⁷ See Boerner and Macher (2002), Klein (2005), and Rindfleisch and Heide (1997) for an overview on the extensive empirical literature in TCE.

⁸ The term secondary airport borrows from a classification by Hirschhausen, et al. (2004). Secondary airports are situated in large catchment areas, provide a large portion of the HSC network feeder traffic, and attract point-to-point traffic.

attributes of the local ramp handling transaction, which varies in the dimensions *frequency*, *uncertainty*, and *asset specificity*.⁹

Frequency. As each aircraft turnaround triggers a ramp handling event, the transaction frequency from the perspective of a hub-and-spoke carrier (HSC) is clear: they carry out their most frequent transactions with handling suppliers at the central hub airports, moderately frequent transactions at secondary airports, and infrequent transactions at typical spoke airports.¹⁰ The frequency of transactions, however, is of secondary importance for governance decisions. It acts as a threshold for strong hybrid and hierarchical modes, since high fixed transaction costs of specialized organizational forms are spread over a larger number of transactions.

Uncertainty. We argue that *environmental uncertainty* and the occurrence of contract re-negotiation is limited in the ramp handling market. Demand uncertainty is comparatively low, production technology is well established, and innovation is limited, due to safety and security regulations.

A second source of uncertainty arises in the form of *behavioral uncertainty* since measuring the handling agents' service quality and their provided level of effort¹¹ come at a cost. The costs of ex-post monitoring and the enforcement of the contracted quality levels are influenced by the complexity of the ground handling process at the respective airport. In a hubbing operation, for example, the causal assignment of the delay to the responsible party/source is more difficult, since ground processes are complex and many dimensions

⁹ The following discussion draws heavily on work on contracting practices in the handling market (Fuhr 2006).

¹⁰ Analyzing the cumulative frequency distribution for aircraft take-offs (departing passengers in brackets) at the different airports in the European Union, reveals the following: the two hub airports contribute 44.1% (54.5%), adding the ten largest spoke airports amounts to 75.7% (80.8%), with the remaining 58 airports in the network contributing 24.3% (19.2%) (Fuhr 2006).

(e.g. air traffic control, fuelling services, catering) exist which might have contributed to the delay. The malperformance of suppliers at hub airports also has far more severe consequences, as it affects the entire network's performance. In consequence, HSCs negotiate both complex quality level agreements and install station management at these contracting locations to monitor and enforce contract performance.

In our particular industry context, the ongoing de-regulation of the market introduces political uncertainties affecting both airlines and suppliers. If the European Commission decides to introduce new rules in a revision of the Directive (e.g. allowing for more entrants or imposing minimum quality standards), supply conditions for ramp handling services will change.

Asset Specificity. Large market shares of hub-and-spoke carriers at their hub and secondary airports trigger investments in dedicated handling equipment and handling staff. Although handling equipment is standardized, such large amounts of thereof cannot be readily re-employed by a different customer. Put differently, if a fictive airline with a market share of 40% were to switch its handling supplier, the new supplier would request special safeguards prior to investing in the equipment, hiring new staff, and expanding local maintenance facilities.

A second source of quasi-rents is the build-up of human capital assets via learning-by-doing. As handling agents accumulate know-how about the airline's processes and flight schedules at the resource disposition level and on the work floor, they are able to increase the quality of their operations and productivity. These human capital assets are lost, however, in case of a supplier change. At the usual spoke airport, such a loss in human

¹¹ Ghosh and John (1999) distinguish between two kinds of costs associated with performance measurement: the opportunity costs of failure to motivate the right level of effort, and the out-of-pocket costs associated with monitoring.

capital asset is small and results in a temporary drop in handling performance. At large secondary airports, however, the quality drop is substantial and longer-lasting. A potential switch of a supplier at an airline's hub airport or a decision to outsource a self-handling operation would result in a substantial loss in handling quality, which would significantly impact overall network performance.

2.2 EU Directive: The Award of Seven-Year Licenses

A review of the entire Directive and its implementation at the national level is beyond the scope of this paper. Given our research question, we focus on the Commission's decision to establish a regime of temporary licensing. We examine the allocation of rights and the enforcing institutions¹² in the tender process.¹³

Under the current set of rules, member states must at least allow for two handling agents to operate at airports with a traffic volume greater than two million passengers per annum. At least one of the selected suppliers must be independent of the airport and dominant airline. In addition, the Directive grants airlines the right to self-handle, but allows the member states to limit the number of self-handling licenses.

The Directive distinguishes among three types of handling suppliers: (i) airport handlers, (ii) self-handling airlines, and (iii) independent or third-party handlers. While *airport handlers* have at their disposal a permanent license to compete in the handling market and are exempt from the award process, *self-handling airlines* are chosen in a selection process in case there are more interested parties than available licenses to self-handle. The Directive does not contain any explicit rules on the duration of these self-

¹² We use the term *institution* in a narrow sense, encompassing *formal* institutions such as laws and organizational entities (business firms, governmental bodies). *Informal* institutions, defined as “rules, norms, and strategies used by humans in repetitive actions” (Ostrom 2005, p. 824) are not subject to this analysis.

handling licenses. *Independent handlers*, on the other hand, are subject to a selection process, which allocates operating licenses with a maximum duration of seven years to the winning parties. The institutional arrangement for the selection process depends on various parameters and is displayed in *Figure 2*.

[Figure 2 about here]

A process of awarding handling licenses is mandatory if the member state has decided to limit the number of operating licenses for new entrants (Article 11 of Directive). All member states, except for countries liberalized at an early stage (e.g. the United Kingdom, the Netherlands), have implemented such restrictions in their national legislation.¹⁴ In a second step, the Directive spells out which party may award the license: the airport is responsible if it does not compete in the downstream market, and otherwise, a “competent authority” is responsible for organizing the award procedure. The selection process itself takes place in three steps: (i) standard conditions and technical specifications for the license are determined (optional), (ii) the tender is published in the official journal of the European Union (obligatory), (iii) the license is awarded. The Directive states that the selection criteria must be non-discriminatory, transparent, and objective. However, the decision on how to structure the award process and what criteria to employ are left to the member states.¹⁵

¹³ Our discussion is based on the Directive itself, the Commission’s consultation paper of 2003, and a recent draft proposal on the Revision of the Directive, dated December 2005.

¹⁴ Very recently, some authorities in these markets have started to grant free access to the local handling market, e.g. at Malpensa airport in Milan, Italy.

¹⁵ Article 14 of the Directive allows member states to impose general obligations on ground handlers for operation at national airports. These obligations must not be discriminatory and must relate to criteria such as financial soundness, sufficient insurance, security and safety of equipment and persons, environmental protection, and compliance with social regulations.

In the award procedure, the airport or responsible authority are required to consult with a *user committee* consisting of the airlines operating at the respective airport. Given the decision to award a limited number of licenses, the decision rights on the selection of the handling provider are allocated to a governmental authority or the airport authority (if the airport does not compete in the handling market). The Commission has put forward three proposals regarding users' rights:

- (1) to maintain consultation rights of users (status quo)
- (2) to allocate decision rights to the user committee
- (3) to allocate appeal rights to the user committee (explicit right to appeal decisions by the authority)

Questions naturally arise on the efficiency of such an institutional arrangement. In this paper, we are particularly interested in whether licenses with a maximum duration of seven years for third-party handlers are inferior or superior to alternative institutional arrangements. In a consultation document on the revision of the Directive, the Commission actually made a rare direct statement of its motivation for awarding licenses:

“the limitation [duration of license with a maximum of seven years] was initially introduced as a guarantee of sufficient competition in a market where the number of suppliers was artificially reduced to two” (Commission 2003)

The above statement suggests that the Commission's main motivation is also to promote 'competition for the market'. This is further confirmed, in our view, by the following discussion of whether or not to auction operating licenses to the highest bidder.

“As an alternative, a more competitive and market-based system of the granting of licenses of service providers could be worth looking at ... [t]he point of reference for the preference of one supplier over another would then be the amount of money to be paid for the license.” (Commission 2003)

The notion of competition for the market was initially proposed by Demsetz as an alternative to the regulation of natural monopoly (Demsetz 1968). However, as the intention of the Commission has been to peel away the layer of a potentially competitive handling market from the infrastructure assets of airports, this natural monopoly setting is not applicable.

An alternative explanation for introducing a licensing regime is to create a regulatory device to discipline the entrant. In this case, the withdrawal of the license could be used as a sanctioning mechanism to the licensee at the time of renewal.

In the same consultation document, the Commission indicates its belief in a functioning market for ground handling in the absence of licensing.

“The usefulness of this provision [selection of handling agents for a maximum duration of seven years] may be questioned as it would lose its significance in case of further liberalization of the ground handling market” (Commission 2003)

The Commission comments further on the usefulness of the award regime.

“[T]he licensing period might be maintained, although hardly any stakeholder has mentioned its usefulness or necessity. Ground handlers are unhappy with the provision as they consider the current seven year period too short to earn back their investments with an appropriate return thereon” (Commission 2003)

Despite the above qualification on the benefits of licensing, the Commission is likely to maintain its requirement for temporary licensing. In a recent draft proposal, the Commission proposed to expand the licensing requirement to the incumbent airport handlers to guarantee a “level playing field”. This suggestion was put forward in spite of the intention to raise the minimum number of licenses at larger airports within the European Community.

3 Analytical Framework: Some Propositions

We draw on the preceding discussion and recent theoretical and empirical work on the effects of institutional constraints on the organizational decision (Ménard and Yvrande-Billon 2005, Yvrande-Billon 2004, Yvrande-Billon and Saussier 2005) to develop propositions on two interdependent problems: (i) the costs and benefits of the license procedure and (ii) the effect of temporary restricted licenses on efficiency in contractual and organizational choice between handler and airline.

3.1 Licensing Procedure

Our review of the Commission's documents does not provide a clear picture of the motivation and expected benefits of awarding licenses to new entrants rather than to incumbents. Let us assume, however, that a benefit does exist in the form of a sanctioning mechanism. Differently put, if a given handling agent failed to perform in accordance with a set of objectives, he or she could be replaced by a competitor at the time of license renewal. From an institutional perspective, the following questions arise:

- Which organization(s) should determine the objectives?
- How should the objectives be operationalized?
- How should the handling supplier's performance be assessed with respect to the chosen criteria?
- How can the organization arrive at an objective decision that can be defended in a public court?

The qualitative criteria stated in the Directive are of little help in answering these questions. National legislation and enforcing bureaucracies dispose have a great deal of

discretion in how to carry out the award procedure. If we revisit the TCE-based challenges to the notion of competition for the market (Williamson 1976), the following appear to be of particular relevance in the case of ramp handling: (i) the cost of measuring an airline's preferences, (ii) the degree of idiosyncratic skills the incumbent handlers have acquired, (iii) the investment in specialized long-lived equipment, and finally (iv) the susceptibility of the political process to opportunistic representation. Each of these challenges is discussed in relation to the current institutional arrangement for awarding handling licenses.

- Cost of measuring an airline's preferences: Airlines, as the buyers of handling services, are able to express their preferences within the user committee. Given the small number of airlines at an airport (compared to a consumer market), a vote on the preferred handling supplier in such a committee represents an efficient way to determine demand preferences, at least as long as strategic considerations are unimportant.
- Acquisition of idiosyncratic skills: We have argued that in particular for complex ground handling processes, e.g. hubbing processes, the handling supplier acquires substantial human capital assets. These assets are not transferable to alternative handling suppliers. Even if the majority of personnel are transferred to an alternative handling supplier, it takes time to develop and establish the organizational procedures¹⁶ required to achieve the same level of productivity and quality in operations.

¹⁶ Tacit knowledge is embedded in organizational routines, which are specific to the organizational structure and culture.

- Investment in long-lived handling equipment and maintenance shops: New entrants will need to invest in standardized handling equipment and maintenance facilities as they build up their market share. These assets are characterized by a mixture of site specificity and dedicated asset specificity. A transfer of assets in case of a replacement of the current handling supplier will prove to be problematic given the persistence of asset valuation problems. Asset specificity and asset valuation problems will increase with the size of the handling market at the respective airport.

Proposition 1a: *Idiosyncratic investments in human capital and equipment result in large transaction costs for awarding licenses at large secondary and hub airports*

- The susceptibility of the political process to opportunistic representation: A governmental authority is confronted with information problems in its decision on whether to replace an existing handler. The criteria and data used in its decision will need to withstand appeal in court. Existing handlers will invest in opportunistic representation, claiming security, safety, social or operational reasons for maintaining their presence in the market. The qualitative criteria used in the selection process are, to a large degree, subjective. In markets with supernormal profits, handling agents are likely to respond in two ways: (i) invest in influencing the political decision makers, and (ii) challenge the selection process in court in case of an adverse decision.

Proposition 1b: *Governmental authorities will prefer not to intervene and to replace an existing handler as they face information and evaluation problems*

Proposition 1c: *Handling suppliers will invest in activities to influence the selection decision or challenge the selection decision ex post*

3.2 Contractual Constraint

The temporary limitation of seven years acts as an institutional constraint on the contracting decision of handlers and airlines. It is important to note that this constraint is only applicable to the supply relationship between independent handlers and airlines, since airport handlers dispose over a permanent license. *Figure 3* displays the different licensing arrangements between the governmental authority and handling suppliers.

[Figure 3 about here]

At the beginning of the licensing period, the constraint on contractual choice is moderate. It appears that the Directive does not consider strong hybrid governance structures, such as long-term contracts beyond seven years' duration, or joint ventures between airlines and independent handlers to be of economic interest for handlers and airlines.¹⁷ As the time on a handling license gradually runs out, the constraint on long-term contracting between independent handlers and airlines becomes increasingly severe.

To demonstrate this, we examine a fictive contracting situation from the perspective of an airline, an independent handler, and an incumbent airport handler. Assume that the airline's current handling contract with the incumbent (airport) handler expires in year five of a seven-year license. The *airline* approaches the market with a tender for its handling volume. As the airline disposes over a significant market share at the respective airport (e.g. greater than 20% of all turnarounds), the *independent handling agent* needs to invest in dedicated assets to handle this volume. Based on the developed TCE logic, the supplier

¹⁷ The Directive does not rule out these contractual and organizational forms *per se*. However, it establishes a strong set of rules that make these governance structures, which lie somewhere on the continuum between mid-term contracts and self-handling, prohibitively expensive.

will require a contractual safeguard prior to investing in additional equipment, hiring new personnel and expanding the capacity of its maintenance shop. The *airline*, on the other hand, is interested in concluding a long-term contract supplemented with a complex quality agreement to (i) economize on ex-ante negotiation costs, (ii) allow for productivity and quality gains in handling operations, (iii) safeguard quasi-rents, and (iv) economize on ex-post monitoring costs. With two years remaining on a license, the airline and the independent handler will not be able to conclude a long-term contract.

Although the *incumbent airport handler* is able to offer an adequate long-term contract, the airline will be reluctant to enter into a long-term agreement with the incumbent given that more contractual choices will become available in two years' time. The risk of entering a "bad" (high-cost) contract with the incumbent causes the airline to choose a shorter contract than it normally would.

The basic proposition on the effects of such misaligned governance structures is one of inferior performance in terms of production and transaction costs (Yvrande-Billon and Saussier 2005). The dynamic propositions are that the transaction partner adapts to the institutional constraint in various ways. The handling agent will either (i) exit or capture only a small part of the market, (ii) adapt itself to an inferior governance structure, or (iii) adapt the attributes of the transaction (seek less-specific investments).

Proposition 2a: *Independent handling suppliers prefer to contract with airlines with low-specificity transactions, while incumbent handlers contract both high and low specificity transactions.*

Proposition 2b: *Independent handlers seek to reduce the amount of specific investments, in particular towards the end of the licensing period.*

4 Contract Duration in Ramp Handling Contracts

4.1 Data and Model Specification

We have proposed that in the presence of specialized governance structures, e.g. long-term contracts, a licensing regime will result in inferior economic performance. Our line of argument, however, rests on the assumption that the contractual partners enter these agreements to economize on transaction costs. In the following, we seek to substantiate this assumption by analyzing whether contract duration is chosen in accordance with TCE's predictions. We focus on the dimension of contract duration, first, because of its importance for safeguarding quasi-rents, and second, because it is directly affected by the license. In our empirical study, we draw on a unique set of 42 ramp handling contracts in the European Union that were in effect between a large European HSC and its handling suppliers in December 2005.¹⁸ The data was collected through a survey of airline procurement managers and handling agents, internal databases of the HSC, as well as external sources. Unlike other European HSCs, the particular carrier in question here has traditionally not been vertically integrated into the ramp handling market at its hub and large secondary airports. At both of these types of contracting locations in its national market, this carrier dealt with airport monopoly suppliers prior to deregulation. The carrier has maintained its 'contract interface' with its ramp handling suppliers up to the time of this study.

In line with prior theoretical and empirical work, contract duration is assumed to be a linear function of asset specificity and uncertainty (Joskow 1987, Saussier 1999). Given

¹⁸ The carrier maintained 70 contracts with its different ramp handling suppliers at airports in the European Union in December 2005. For the following reasons we have excluded 28 contracts from our review: 5 contracts were affected by prior disinvestments, 22 contracts were negotiated with monopoly handling suppliers, and for another 3 contracts we were unable to obtain reliable data.

the service nature of the ramp handling transaction, we distinguish between the two sources of uncertainty discussed in the TCE literature (Ghosh and John 1999, Williamson 1985, pp. 56-60). While *environmental uncertainty* determines the need for adaptation in an exchange relationship, *behavioral uncertainty* arises due to the airline's problem of observing and verifying the supplier's quality and its provided effort.

$$DURATION_i = b_1 Asset\ Specificity_i + b_2 Env_Uncertainty_i + b_3 Beh_Uncertainty_i + u_i$$

We expect *asset specificity* and *behavioral uncertainty* (Beh_Uncertainty) to increase contract duration (DURATION), while a rise of *environmental uncertainty* (Env_Uncertainty) is expected to decrease duration. The distribution of the dependent variable DURATION is displayed in *Table 1*. While 81.8% of all contracts exhibit a duration of less than three years, 19.2% of all contracts last between three and seven years¹⁹ in our sample.

[Table 1 about here]

4.2 Explanatory Variables

In line with our discussion, asset specificity is operationalized with a proxy for dedicated and human capital asset specificity (MSHARE and TSHARE). DELAY is the proxy variable for behavioral uncertainty (cost of performance measurement), while the variable VOLATILITY approximates the degree of environmental uncertainty.

¹⁹ One should note the difference between contract duration and duration of contractual relation. As many contracts are revolving or are renewed as they expire, the duration of the contractual relation exceeds the duration of the contract.

$$DURATION_i = a_0 + b_1MSHARE_i + b_2TSHARE_i + b_3DELAY_i + b_4VOLATILITY_i + u_i$$

The intuition behind and measurement of these determinants of contract duration are as follows:

- Specific investment in handling equipment and personnel (MSHARE): Handling equipment is standardized and can be re-employed with an alternative airline using the same or a similar aircraft type. If a single airline disposes over a large market share, the equipment employed to handle the airline's fleet turns into a dedicated asset. The higher the airline's market share (MSHARE) at airport *i*, the larger the mutual dependence between handling agent and airline. The volume of the carrier (VOLUME) is measured in take-offs per year, while the size of the local handling market (APSIZE) is corrected for the volume of self-handling airlines (VOLUME_SELF).²⁰

$$MSHARE_i = \frac{VOLUME_i}{APSIZE_i - VOLUME_SELF_i}$$

- Carrier-specific human capital assets (TSHARE): The interaction of handling supplier and airline in the contract execution period results in a build-up of human capital assets. Our proxy for this build-up at the resource disposition and the work-floor level is the percentage of transfer passengers of the carrier's total number of departing passengers at contracting location *i*. The intuition behind this is that transfer processes are highly complex, and optimizing them results in a build-up of human capital assets via learning by doing.

²⁰ The adjustment creates a more precise measure of the carrier's significance for the "contestable" market from the handling supplier's perspective.

- Cost of Performance Measurement (DELAY): As is typical for services in general, production and consumption occur simultaneously in ramp handling. For an airline, the punctual departure of aircraft is one of the most important quality parameters. The performance of handling suppliers is judged not only by industry-wide safety standards and compliance with governmental security regulations, but also by their ability to handle the aircraft on time. However, measuring and assigning delays to the responsible party are not trivial issues, as a wide variety of factors influence punctuality at an airport. A higher level of delays incurred by the carrier at the contracting location i increases the complexity of ground processes and thus the cost of performance measurement. The proxy DELAY is obtained by dividing the total minutes of delay incurred by the carrier at airport i (DELAY_TOTAL) by the number of take-offs (VOLUME).

$$DELAY_i = \frac{DELAY_TOTAL_i}{VOLUME_i} \times 100$$

- Environmental Uncertainty (VOLATILITY): We have argued that parametric changes in the environment of ramp handling are limited. Demand uncertainty in the form of fluctuation in the airline's traffic volume, however, will affect the handler's productivity level. For the computation of VOLATILITY, we draw on monthly data on the number of take-offs of the carrier at location i in the period 2004-2005. The variation coefficient for this period is obtained by dividing the standard deviation (VOLUME_STDEV) by the mean (VOLUME_AVG).

$$VOLATILITY_i = \frac{VOLUME_STDEV_i}{VOLUME_AVG_i}$$

In addition to these determinants of contract duration, we introduce three dummy variables to our model:

- Countries liberalized at an early stage (EARLYLIB): The airports in our sample have been arranged into country clusters. At airports in countries that liberalized their ramp handling markets prior to the EU Directive, market access is not restricted. The variable LIBERAL takes the value of 1 for these contracts.
- Licensing Constraint (LICENSE): If the contract was negotiated within three years of the renewal date of the license, we coded the dummy variable LICENSE with the value one. Each coding has been validated by the responsible purchasing manager for the respective account, who was asked whether the upcoming license renewal had been considered in the negotiation process.
- Airport Handler (VERTICAL): This dummy variable takes the value of 1 if a forward-integrated airport is the airline's contracting partner at location *i*.

In line with TCE's predictions and our proposition, we expect VOLATILITY, EARLYLIB, VERTICAL, and LICENSE to have a decreasing effect on contract duration. The coefficients for the remaining variables should display positive signs. *Table 2* summarizes the sample statistics (n=42) and the correlation coefficients of our dependent and independent variables.

[Table 2 about here]

4.3 Estimation Results

We rely on ordinary least square (OLS) regression analysis to test the proposed relationships in the specified model.²¹ Four different model specifications for the dependent variable DURATION have been employed.

[Table 3 about here]

With the exception of VERTICAL, all coefficients display the predicted signs. In model specification (1) MSHARE and DELAY are significant at the 1% and 5% levels respectively, while TSHARE and VOLATILITY are not significant.

Adding the dummy variable EARLYLIB in specification (2) increases the adjusted R^2 by 0.13 to 0.57. Further accounting for the existence of a licensing constraint (LICENSE) in (3) improves the explanatory power of the model by 0.05 (adjusted R^2 0.62). Both coefficients are significant at the 1% level. The explanatory power of the model is not improved when the supplier is a forward-integrated airport (VERTICAL).

Taking a closer look at specification (3) reveals that MSHARE, TSHARE and VOLATILITY have a significant impact on DURATION, while the cost of performance measurement (DELAY) displays a non-significant effect²². The standardized coefficients show that MSHARE, EARLYLIB and LICENSE have the strongest impact on contract duration. DURATION increases by approximately 154 days with a 10 percentage point rise in market share (MSHARE) and by 64 days with a 10 percentage point rise in transfer

²¹ Assuming standard properties of the error term u_i , OLS will provide the best linear unbiased estimates. The degree of multicollinearity (highest variance inflation factor at 1.92) and autocorrelation (lowest Durbin Watson coefficient at 1.85) are in the acceptable range.

²² One explanation is that performance of the handler is being safeguarded and coordinated by a different aspect of the contract than its duration (see Fuhr 2006 for a discussion).

share (TSHARE). An increase in traffic fluctuation by 0.1 in the variation coefficient decreases DURATION by 49 days. Contracts negotiated in markets liberalized early are, on average, 705 days shorter, while contracts affected by a licensing constraint are reduced by 360 days.

Given these results, we argue that airline and ramp handlers mainly design the contractual dimension duration as predicted in TCE. In particular, investments in dedicated assets (MSHARE) impact the duration of ramp handling contracts.

In the absence of market access restrictions in markets liberalized early, contract duration tends to decrease. More choices for contracting partners in these markets apparently decrease the mutual dependency between airlines and handling agents. Partners are able to rely on shorter contracts since the danger of encountering a thin market condition upon contract renegotiation is reduced. A license regime, on the other hand, decreases contract duration, while the absence of a license regime increases contract duration. Taking the upcoming license renewal into account, handling agents and airlines opt to artificially reduce contract duration.

5 The German Experience: The Award of Handling Licenses

Prior to the implementation of the EU Directive, forward integrated airports had been the exclusive providers of ramp handling services at German airports. The German market represents an interesting subject for analysis due to its economic importance in the European Union and since it continues to be a source of (formal) complaints by airlines to the Commission. Following the logic in the development of our propositions, the following case study is structured into two parts.

In a *first step*, we have reviewed 12 out of 17 tender processes for operating licenses for third party handlers at German airports since 1998. Our objective has been to collect information on the economic performance of the award regime in the light of our propositions 1a, b, and c. The qualitative discussion in this part draws on information from several sources: (i) the tender publications in the Official Journal of the European Union, (ii) results and criteria used in the selection process (iii) protocols of user committee meetings, (iv) legal challenges, and (v) expert interviews.

In a *second step*, we analyze the transaction between handler and airline in the downstream market. Being confronted with a lack of detailed data on the contracting decision itself, we have resorted to comparing investment levels in equipment and maintenance facilities between new entrants and established airport handlers. Furthermore, we assess whether new entrants have been able to contract highly specific transactions with the national HSC in its national market since 1998. The information used was collected in a series of expert interviews with procurement managers of the national HSC and senior commercial managers of independent handling agents.

5.1 The Costs and Benefits of Licensing

Germany implemented the Directive into national law via the ‘*Gesetz über Bodenabfertigungsdienste an Flughäfen*’, 11 November 1997 and the ‘*Verordnung über Bodenverkehrsdienste auf Flughäfen*’ (hereinafter referred to as ‘BADV’), 10 December 1997.

In Germany, airports compete in the handling market; thus, the responsibility for the award of licenses is assigned to the local supervising authorities for the respective airport

at the state level²³. The BADV restricts the number of handling licenses for ramp handling to two at airports with a passenger volume greater than two million²⁴. Since incumbent airports—as handlers—do not have to undergo a selection process and therefore are in possession of permanent licenses, the respective ministry is faced with the challenge of awarding the single remaining license to interested third-party handlers²⁵. In Appendices 2 and 3 of the mentioned law, the structure and the criteria used in the selection process are spelled out in some detail. The law delineates two stages in the award process: (i) a pre-qualification stage and (ii) a selection stage. The criteria for the pre-qualification for the actual tender are as follows:

- Personal reliability of handling company management.
- Adequately qualified operating staff.
- Sound financial situation.
- Promise to retain all staff of the incumbent.
- Agreement to pay concession fees.
- Sufficient liability insurance.
- General compliance with environmental, social, security, and safety regulations.

Once the applicants have passed the pre-qualification stage, they are asked to submit further details for the actual tender process. The BADV is not clear about the means by which the authority should arrive at its final selection, except that the criteria used must be

²³ Due to the federal structure of the German government, the responsibility for air transport is assigned to the 16 state governments, usually to a department within the Ministry of Transport.

²⁴ In accordance with the EU Directive, the BADV does not mandate airports with a passenger volume below this threshold to open up their ramp handling markets to competition.

²⁵ The law requires both independent handlers and self-handlers to apply for a license with a maximum duration of seven years.

non-discriminatory and that airlines (airport users), the respective airport operator, and the worker's council must be consulted. Thus in accordance with the questions raised in Section 3.1, we investigate how the award of licenses has actually been organized. Table 4 displays the tender processes conducted in Germany since 1998 for ramp handling licenses.

[Table 4 about here]

Decision Criteria. In the 12 tender processes reviewed, approximately seven handling agents applied on average, of which on average five submitted final applications for the license. All tenders respond explicitly to the standard pre-qualification criteria, as spelled out in the appendix of the BADV. In the first period of awarding licenses, prior to the ruling of the European Court of Justice²⁶, the commitment to retain all personnel of the incumbent as well as to pay a concession fee for market access was included in every tender as a pre-qualification requirement. Since 1998, the following selection criteria have been employed by the authorities in the tender processes:

- Existence of a quality management system, e.g. ISO 9000.
- A calculation of resource requirements (personnel and equipment) and prices based on a standard flight week at the respective airport.
- A start-up, operations, and “employee transfer” plan at the respective airport.
- References.

²⁶ The European Court of Justice (ECJ), has ruled the requirement that the entrant accept a transfer of staff or pay a compensating fee to the incumbent in the German implementation (BADV §§8(2) and 9(3)) to violate

- Compatibility of the handling agent’s business plan with airport’s long-term goals.
- Votes by the user committee, worker’s council, and airport operator.

Operationalization and Measurement. Due to the subjective nature of most of the criteria listed above, their operationalization and measurement has proven to be difficult for the authorities. In many cases, the decision makers applied a ranking logic, i.e. Applicant A submitted a more persuasive application than Applicant B. In other cases, the authorities developed a scorecard, assigned different weights to the criteria, awarded scores, and chose the applicant with the highest overall score. In yet other cases, the authorities identified a group of equally qualified applicants based on the criteria employed, and then followed the vote of the user committee, airport operator, or worker’s council to decide among them.

The apparently most objective parameters—price and resource requirements on the basis of the standard flight week—are especially intriguing. The results of the calculation have been challenged frequently as not feasible and thus discarded. In other cases, the applicants’ calculations were simply not comparable from the outset due to different assumptions and reporting formats.

The role of the prices submitted in the application is not clear. In most cases, the authorities asked for maximum prices (list prices) and in rare instances for minimum prices as well. Whether these list prices are binding during the licensing period is questionable. If this were the case, submitted list prices would act as an artificial price ceiling and result in strange incentives for the parties in the consultation process. Users most likely prefer

Article 16 and 18 of the Directive (ECJ, C-386/03, 14 July 2005). The right to levy a (non-cost-based) concession fee for market access has been declared as inadmissible by the ECJ decision of 16 October 2003.

applicants with low pricing levels, while incumbent airport handlers and the worker's council have the opposite interest in their vote on the new entrant. In the absence of a unidimensional and objective criterion, new entrants are faced with a large degree of uncertainty regarding the basis upon which their application will be evaluated.

Consultation and Selection. In the German institutional setting, the user committee votes on its preferred supplier in the presence of the ministry and the airport operator. We have analyzed how the past voting behavior of users on their preferred handling suppliers compares to the voting behavior of airport operators, the respective worker's council, and the final decision of the authority. In the 12 tender processes reviewed, airport operator and worker's council voted for the same applicant ten out of 12 times. The airlines in the user committee, however, only voted in accordance with the airport operator and the worker's council five out of 12 times. On ten occasions, the authority followed the airport operator's recommendations.

Reviewing the seven award processes in which licenses were up for a second licensing term, we noted that the authorities did not replace an existing handler on any occasion in spite of divergent votes by the user committee on six occasions. In all seven instances, the authorities named the avoidance of operational disturbances and the superior implementation plan as key award criteria.

Special Observations and Legal Challenges. In handling markets with the potential for supernormal profits, e.g. at Frankfurt airport, incumbents and applicants have a particularly strong incentive to influence the authority's decision or to challenge an adverse decision in court. Various legal challenges have occurred in the context of award decisions since 1998.

At both German hub airports, Munich and Frankfurt, legal challenges have been raised and formal complaints to the European Commission have been filed²⁷.

Leaving the details of these challenges and rulings aside, the major claim they share is that the award process and the decision have not been based on objective, non-discriminatory criteria. In all except one of the reviewed cases, courts have ruled in the first instance in favor of the plaintiffs (applicants who lost the tender). However, in the first licensing term, all legal challenges against the authorities were withdrawn by the new entrants prior to the final rulings. The basis for the decision was an informal agreement among the independent handlers, seeking to avoid a deadlock in the face of ongoing legal battles²⁸. A continuation of legal challenges would have prevented or at least delayed the start of operations of the selected handlers at the respective airports.

From a transaction cost perspective, legal challenges indicate large (direct) transaction costs associated with the tender process. The opportunity cost of a pending selection decision might, however, exceed these direct transaction costs. Given the uncertainty that results from challenging a selection decision in court, economic performance in the respective market will suffer because independent handlers and airlines are not able to enter into contracts to support specific investments.

Two more observations are worth mentioning. *First*, on some occasions, the authority has decided to limit the licence's duration to four or five years and thus below the maximum of seven years. These limitations have been imposed at both German hub

²⁷ Legal challenges addressing the award processes reviewed in the current study include BVG (20 AS 99.40032, July 21, 1999), OVG Lüneburg (12 M 2094/99, June 24, 1999), HVG (2 Q 4634/98, May 27, 1999), VGH (12 Q 132/06, 12 Q 114/06, May 2, 2006). Furthermore, British Airways, KLM and Air France issued formal complaints to the European Commission in the licensing process for Frankfurt in 1998/1999. Recently, the losing applicants for the license at the airports Hannover and Berlin-Tegel have filed suits against the authorities' selection.

²⁸ The selection decision by the authority falls under administrative law in Germany, which tends to complicate and lengthen legal challenges in Germany (Bauer 1999)

airports and at one large secondary airport. In the recent tender process in Frankfurt, for example, the licensing period was restricted to five years, with the option for the airport operator to prolong the period by another two years. According to our proposition, a shortening of the licensing period will render contractual constraints even more severe.

Second, at two small airports, the selected ramp handler has stopped servicing the market, while at a fairly large secondary airport, the handler has exited the market. Apparently the new entrants did not have confidence in their ability to recoup the investments at these airports. In the case of the insolvency of ServisAir, the authority had decided against the airlines' vote in the selection process. As a result, the handling agent was only able to win contracts with two individual airlines and was thus forced to exit the market (Nauke 2001).

5.2 Contractual Choices and Misalignment

We have proposed that due to the contractual constraint set by the temporary license, independent handlers will prefer to contract low-specificity transactions and adapt their investment strategies accordingly.

Contracting Practices. Having reviewed the contracting practices of the national hub-and-spoke carrier, we see that only on two individual occasions since 1998 has a carrier entered into a contract with a new entrant. At both airports, a portion of the total traffic volume—the handling of the regional jet fleet—was awarded to the independent handling agent. The handling of regional jets is highly labor intensive and requires only small amounts of (specific) investments in loading equipment. At all airport locations in its national market, the carrier has so far maintained its contractual relations with the incumbent airport handlers.

Investment Strategies. In our expert interviews, independent handling agents stated that the majority of their handling equipment is their own property. In one case, the new entrant shares an equipment pool with the incumbent airport handler. The handling agents further confirmed that the acquisition of new airline customers becomes increasingly difficult as the license period gradually runs out. In their pricing decisions, some entrants artificially assume a shorter depreciation period for their equipment in the face of a seven-year license. Apparently they are not confident that they will recoup any value from a sale in the secondary market for handling equipment. Thus new entrants are willing to accept a competitive disadvantage compared to the incumbent airport handler, which uses longer depreciation periods for their equipment.

Turning to the organization of the transaction 'maintenance of ramp handling equipment', we observed substantial differences among handling agents. Handling companies are able to choose between three generic options for the organization of their equipment maintenance work:

- (1) Investing in their own on-airport facilities and hiring staff (make option)
- (2) Contracting with an on-airport supplier (usually another handling agent)
- (3) Contracting with an off-airport supplier

While all incumbent airport handlers have invested in on-site airport maintenance shops, new entrants have shown a preference to contract out their maintenance work to the incumbent airport handler. Since the opening of the market in 1998, none of the new entrants has pursued the 'make option' nor sought an off-airport source for their maintenance work. While off-airport maintenance is possible *per se*, it entails direct transportation costs and the opportunity costs of extended equipment downtime.

Furthermore, independent handlers claimed that contracting with the incumbent airport handler allows them to mitigate the risk associated with safety and security certification of their equipment in the licensing process.

The downside of contracting maintenance with a competitor is the dependency and the limited capacity. Both act as restraints to competition as well as to the independent handler's capability to handle customers with highly specific transactions (airlines with large market shares). Facing the licensing constraint, independent handlers are not willing to invest in site-specific maintenance equipment and facilities (depreciation of approximately 15 years). In consequence they are not able to compete for carriers with substantial market shares in the local market.

5.3 Lessons Learned

Given the evidence on the award of licenses at German airports, we feel that propositions 1a, b, c are supported. We arrive at this conclusion in spite of the fact that none of the handling agents has been replaced so far. On the basis of the problems observed with the initial award of licenses and with the renewal thereof, one can imagine that legal challenges in case of a withdrawal of a license will be of an even larger scale.

The indirect costs of the current institutional arrangement in Germany surface in the national HSC's and the new entrants' inability to craft appropriate governance safeguards. The licensing constraint causes handlers' investment levels to be artificially reduced. Handling agents refrain from investing in specific assets and thus do not compete in market segments which require these specific investments. Although we are not able to estimate the costs of the reduced investment level and misaligned governance structures,

these indirect costs are likely to be particularly large at hub and large secondary airports. We consider the evidence presented to be supportive of our propositions 2a and b.

6 Conclusion

We have set out to explore a single element of the EU Directive: the obligation to award operating licenses to new entrants. Applying transaction cost economics as the lens of analysis, we have developed propositions on the economic performance of licensing in a liberalized ramp handling market. The duration of ramp handling contracts has been shown to follow the majority of TCE's predictions. Large market shares of HSCs at their hub and secondary airports combined with transfer-related ground processes make specialized governance modes (e.g. long-term contracts) the governance structure that best minimizes transaction costs.

Both the econometric results and the evidence presented on the award of licenses at German airports support our general proposition on the adverse effects of temporary limited licenses. The current institutional arrangement results in considerable direct transaction costs, as the parties involved spend resources for the preparation of the licensing procedure as well as for legal advice and court challenges. Furthermore, the licensing constraint causes high opportunity costs, since the design of efficient governance forms is obstructed, investment levels are reduced, and competition in the market segment for highly specific transactions is restricted.

Although the current situation is not satisfactory, it might well be the most efficient solution among the range of feasible alternatives. Any institutional analysis thus needs to examine the institutional arrangement in a comparative manner and derive recommendations for a superior alternative. An easy answer would be to believe in the

self-regulating forces of markets and allow free market access. However, on the basis of the political compromise of introducing competition gradually, we accept a market access limitation and base our recommendations on this constraint.

Based on the evidence and our TCE reasoning, we propose that licenses be awarded without a temporary limitation. Permanent licenses will both economize on direct transaction costs and allow for gains from trade as efficient contracting solutions between handling agents and airlines are designed. At least in the German institutional environment, the benefits of a repeated licensing procedure are not evident to us. Our second recommendation deals with the rights of airlines as buyers of handling services. We argue that user committees in cooperation with airport operators can act as self-regulating institutions for the local ramp handling market. Thus, decision rights on the selection of handlers should be assigned to the users, while the airport operators should retain veto rights. In case of divergent views, an independent arbitrary body should review the decision.

Any other rules addressing operational issues, such as the overall quality level at the airport or other rules of conduct, should be designed and enforced by the user committee in coordination with the airport operator. Given the small number of parties involved in the local market for handling services (as compared to a consumer market), we do not see a need for outside regulation, since airlines and airport operator share a common interest in these issues. After a transitory phase we believe that ramp handling markets, supported by the institutional arrangements mentioned, are self-regulating.

We are aware that our proposition on an alternative institutional arrangement is a preliminary one that needs to be worked out in greater detail. Our own empirical work would benefit from more detailed data on the contracting decision in the ramp handling

market and award procedures in other European markets. Provided such data could be obtained, one could, for example, estimate the loss in performance in the presence of a misalignment between transaction and governance structure (Hamilton and Nickerson 2003, Yvrande-Billon and Saussier 2005).

Furthermore, our TCE perspective on the ramp handling market could be supplemented by alternative theoretical perspectives. Here, we can imagine the application of public choice theory to shed light on the incentives of legislative bodies and the enforcing authorities. One could also examine whether and how the different licensing types (permanent vs. temporary) affect the ability for collusive behavior between the incumbent and entrant. Finally, a resource/capability perspective could show whether new entrants lack or possess distinct (productive) capabilities enabling them to serve certain segments of the market particularly well.

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Figure 1: Transactions in the Vertical Supply Chain for Handling Services

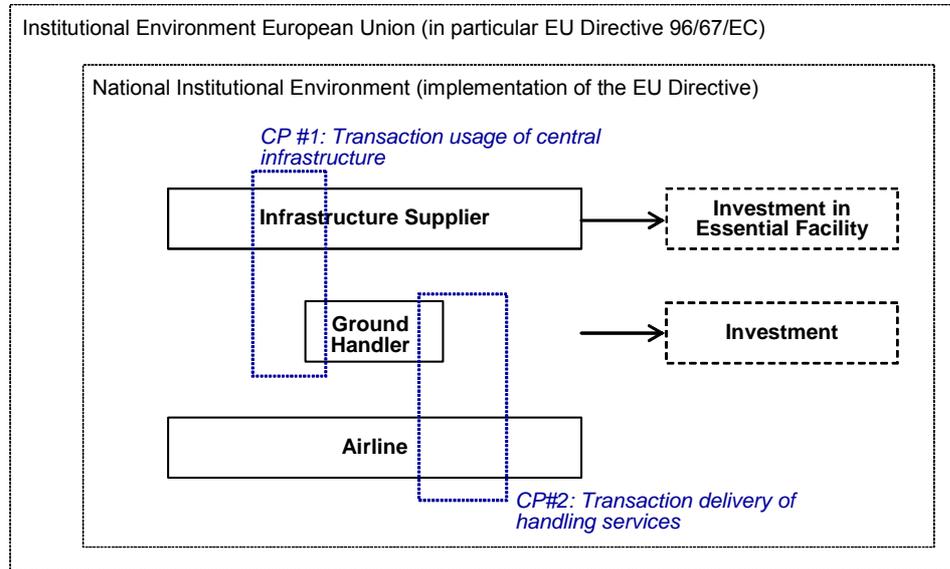


Figure 2: Criteria in the Selection Process for Independent Handlers

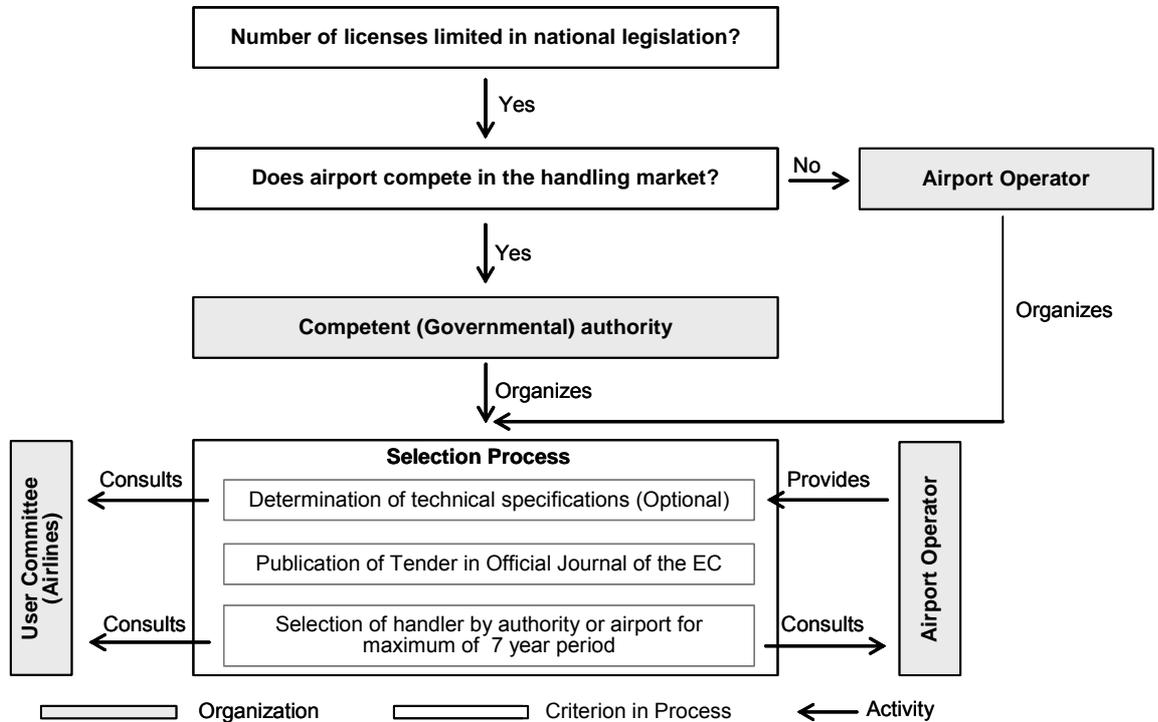


Figure 3: Licensing Arrangements

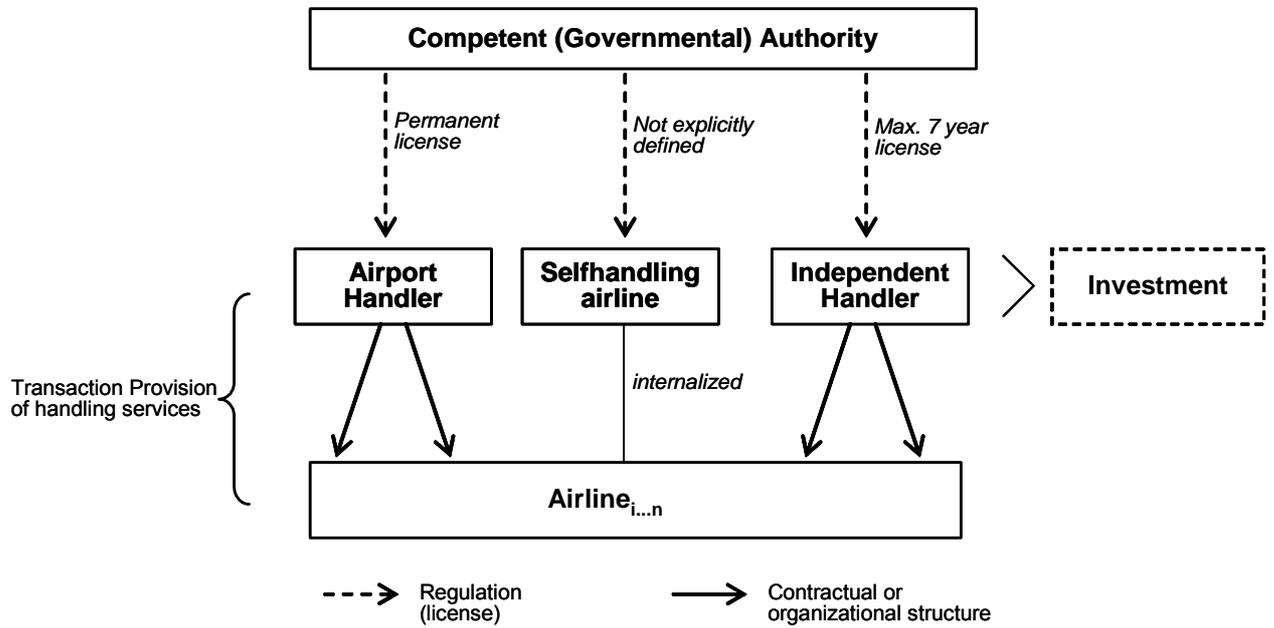


Table 1: Distribution Contract Duration

<i>DURATION</i>	<i>n</i>	<i>Percentage</i>	<i>Percentage (cum)</i>
< 1 year	20	31.3	31.3
< 2 years	12	18.8	50.0
< 3 years	20	31.3	81.3
< 4 years	4	6.3	87.5
≤ 5 years	7	10.9	98.4
> 5 years	1	1.6	100.0
Total	64	100.0	100.0

Table 2: Descriptive Statistics

Variable	Correlations							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) <i>DURATION</i> ^a	1.00							
(2) <i>MSHARE</i>	0.62	1.00						
(3) <i>TSHARE</i>	0.51	0.53	1.00					
(4) <i>DELAY</i> ^b	0.35	0.09	0.40	1.00				
(5) <i>VOLATILITY</i> ^c	-0.14	-0.15	-0.13	0.18	1.00			
(6) <i>EARLYLIB</i>	-0.50	-0.26	-0.16	-0.04	-0.10	1.00		
(7) <i>LICENSE</i>	-0.15	0.05	0.09	-0.31	0.11	-0.34	1.00	
(8) <i>VERTICAL</i>	0.45	0.37	0.23	0.26	-0.15	-0.37	0.03	1.00
Mean	789	0.12	0.07	824	0.11	0.19	0.33	0.62
Minimum	60	0.00	0.00	250	0.03	0.00	0.00	0.00
Maximum	2,520	0.75	0.68	1,347	0.83	1.00	1.00	1.00
Std. Dev.	595	0.15	0.16	228	0.13	0.40	0.48	0.49
n=42								

^a in days^b delay minutes per 100 take-offs^c number of take-offs (Std. Dev/ Mean)

Table 3: OLS Regression Estimates

<i>DURATION</i>	Coefficients, T-values			
	(1)	(2)	(3)	(4)
<i>C</i>	-36.56 (-0.16)	119.24 (0.45)	522.46 (1.83)*	515.85 (1.77)*
<i>MSHARE</i>	2061.71 (5.13)***	1688.83 (4.23)***	1542.37 (3.95)***	1459.58 (3.71)***
<i>TSHARE</i>	385.08 (0.94)	293.82 (0.82)	637.96 (1.98)*	678.49 (2.04)**
<i>DELAY</i>	0.73 (2.35)**	0.77 (2.49)**	0.42 (1.35)	0.35 (1.11)
<i>VOLATILITY</i>	-462.71 (-1.15)	-734.66 (-2.14)**	-486.92 (-1.75)*	-411.67 (-1.29)
<i>EARLYLIB</i>		-565.30 (-2.93)***	-705.21 (-4.05)***	-672.91 (-3.34)***
<i>LICENSE</i>			-360.40 (-2.83)***	-365.45 (-2.88)***
<i>VERTICAL</i>				85.12 (0.55)
Adjusted R ²	0.44	0.57	0.62	0.62
N=42				

Heteroskedasticity-robust t statistics in parentheses. Significance at 10%, 5%, 1% level (*, **, ***).

Table 4: Conducted Tender Processes at German airports since 1998

Airport	Incumbent	Selected Entrant	Duration Operating License		Change in Entrant	Special Observations
			First Term	Second Term		
CGN	Airport	Aviapartner	2001 – 2005	2005 – 2010	No	Both licenses with 5 years duration.
DUS	Airport subsidiary	Aviapartner	2001 – 2008		N/A	
FRA	Airport	Acciona/ LUG	1999 – 2006	2006 – 2011/13	No	Legal challenges by losing applicants. Formal complaints by airlines to European Commission.
HAJ	Airport subsidiary	Aviapartner	1999 – 2006	2006 – 2013	No	Legal challenges by losing applicant.
HAM	Airport subsidiary	Acciona ^a	1999 – 2006	2006 – 2013	No	
LEJ	Airport subsidiary	Aviapartner	2002 – 2008		N/A	Aviapartner has decided not entered market
MUC	Airport	Aviapartner	1999 – 2003	2003 – 2010	No	First license with 4 year duration. Legal challenges of losing applicants.
NUE	Airport subsidiary	Aviapartner	2001 – 2007		N/A	Aviapartner has left the market.
STR	Airport	ServisAir	1999 – 2001**	2003 – 2010	Yes (Losch GmbH)	Market exit of ServisAir in 2001. Replacement by Losch GmbH in 2003.
TXL	Globe Ground Berlin	Acciona ^a	2001 – 2006	2006 – 2013	No	Legal challenges by losing applicant.

^aOperating license had been granted to the company Checkpoint B, which was acquired by Acciona.