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# Air passenger duties as strategic tourism taxation

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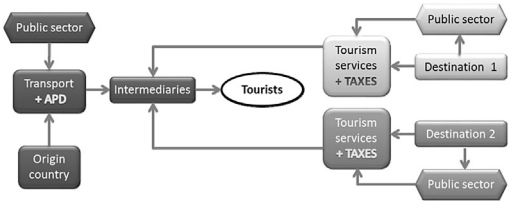
## GRAPHICAL ABSTRACT

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## ABSTRACT

There has been a recent debate on the rationale and economic impacts of air passenger duties (APDs) linked to puzzling empirical results on this topic. We argue that an approach from strategic tourism taxation can improve our understanding of these results. APD set by origin countries of tourists can be viewed as an instrument for extracting economic rents that would otherwise be retained by tourism destinations. A theoretical model of strategic taxation between an origin and two destinations is developed to illustrate this idea. We find that countries' strategies may end up with winners and losers, or with all parties facing welfare losses. The game outcome depends on countries' market shares of profits and the substitutability between tourism services provided by different destinations. The findings suggest that the economic impacts of APDs recently evaluated in the literature might be biased because of the omission of other countries' potential tax reactions.



## 1. Introduction

Air passenger duties (APDs) established by several countries —such as Australia in 1978, United Kingdom in 1994, Germany in 2011, Austria in 2011, among others— have recently caught the attention of travel and tourism researchers (Forsyth & Dwyer, 2014a; Forsyth, Dwyer, Spurr, & Pham, 2014; Seetaram, Song, & Page, 2014), as deeper understanding is needed about their rationale and economic effects. APD can be generally defined as a specific per passenger tax that applies to departures and may be progressive according to flight distance. The tax burden affects both home travellers to foreign destinations (outbound tourism flows) and foreign travellers coming to the home country (inbound tourism flows). This topic is economically and socially relevant, as APD impacts on the tourism activity and welfare of both the home country and flight-connected tourism destinations. Notably, for the

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first time, the OECD (2014) has published a report on *Tourism Trends and Policy 2014* including details on tourism related taxes, such as APD, in a large sample of countries. In the future, the report will continue to meet the growing demand from governments and the tourism industry for data on worldwide tourism taxation.

While APD has been mainly justified as environmental taxation (Pearce & Pearce, 2000), empirical results reveal that it neither significantly discourages travel demand (Seetaram et al., 2014) nor reduces greenhouse gas emissions (Mayor & Tol, 2007, 2010). As an alternative, public revenue-raising seems to provide a more accurate rationale for such a policy (Forsyth & Dwyer, 2014b). In this context, a general equilibrium analysis of APD impacts is needed to avoid tax inefficiencies. Empirical studies have obtained either positive or negative economic impacts for different economies (PwC, 2013; Forsyth et al., 2014). Therefore, there seems to be a puzzle regarding the rationale and economic effects of APD.

In this paper, we argue that this puzzle can be clarified if APD is viewed as strategic taxation established by origin countries of tourists with the aim of extracting rents from tourism destination countries. Indeed, OECD countries with the highest APD rates present travel account deficits (Eurostat, 2013; Spörel, 2007; Australian Government, 2016), and hence can be predominantly considered as tourism origins. This fact implies that the burden of APD is mostly borne by residents in origin, who are also taxed by tourism destinations. Owing to their particular features —landscape, mild weather, cultural heritage, business city, etc.—, destinations usually enjoy export market power in tourism, so they have incentives to exploit it via imperfect competition and/or tourism taxation (Forsyth & Dwyer, 2002).

The presence of international tourism intermediaries —mainly tour operators (TOs)— based in origin countries is a crucial factor in the analysis of strategic taxation for rent extraction, as they allow origins to earn a share of economic rents generated in tourism transactions (Čavlek, 2006). These intermediaries operate in the inclusive tour market, facilitating tourists the acquisition of the tourism shopping basket. This is a sizeable market; as an example, around 60% of Europeans opted by package holidays in 2014 (European Commission, 2015). Moreover, concentration is a main feature of this market (Papatheodorou, 2006). Small and medium intermediaries coexist with big conglomerates emerged after successive mergers. Remarkably, the two main European groups account for more than 50% market share in major origin markets (Touristik & Business Travel, 2014).

Regarding tax policy, it must be highlighted that origin countries cannot directly levy taxes on tourism imports, as these imports are consumed in the destinations. However, taxing air transport, a complementary service produced domestically, seems to be a feasible option. Thus, tourism taxes are used by destinations to extract economic rents from tourists (Gooroochurn & Sinclair, 2005), while APD may be understood as an origin's strategy for extracting a portion of those rents.

To illustrate these ideas, we develop a theoretical model of tourism strategic taxation between an origin and two tourism destinations. Origin and destinations are assumed to be pure outbound and inbound tourism countries (Strand, 2008), and thus domestic tourism is not considered. This simple framework is enough to characterise the interactions between origin and destinations, as well as constrains linked to competition among destinations. The model is based on the literature of international trade under imperfect competition with vertical specialisation (Ara & Ghosh, 2016), and particularly, on the literature on strategic taxation in trade of non-renewable resources (Bergstrom, 1982; Liski & Tahvonen, 2004; Rubio & Escriche, 2001; Strand, 2008). In the latter case, strategic taxation is used by import countries with the aim of rent extraction from resource-exporting countries. Nevertheless, these models do not capture three of the main features of tourism markets: complementarity between transport —usually supplied in origin— and destination tourism services, heterogeneity and partial substitutability of tourism services provided by different destinations and the relevant role played by tourism intermediaries. For brevity, hereinafter we will refer to tourism services provided at the destination as tourism services. This clarification is pertinent since, according to United Nations (2010), transport and intermediation are also tourism characteristic products.

Our model does capture these features. Tourism services produced by destinations and transport services provided by the origin are assumed to be perfect complements, and hence make up a bundle of consumption (Divisekera, 2002; Wachsman, 2006; Álvarez-Albelo & Hernández-Martín, 2012). Tourism firms in each destination produce differentiated services, so they enjoy market power (Forsyth & Dwyer, 2002). These firms market their services through an intermediary or TO that is based in origin. In this respect, it is worthwhile to highlight that tourism destination firms can market their services through intermediaries (e.g. online travel agencies, traditional travel agencies and TOs) or via direct selling (Lu, Yang, & Yuksel, 2015). Nonetheless, in holiday markets direct selling represents a small share of the market (Romero & Tejada, 2011). In our model, the TO purchases transport and tourism services, build tourism packages and sells them to tourists.

The transport sector is competitive. We make the realistic assumption that this sector is based in the origin. However, this assumption does not affect the results of the model. Thus, we are assuming that no economic rent can be extracted from transport, which is in line with the increasing competition in the air transport sector due to liberalisation and the emergence of low cost carriers (Hofer, Windle, & Dresner, 2008; Oum, Zhang, & Fu, 2010). By contrast, tourism firms in the destinations and the TO in the origin earn their respective portion of total economic rent generated in tourism transactions.

Under this setting, governments at both origin and destinations have incentives for introducing strategic taxation on transport and tourism services, respectively, for rent extraction. Here, strategic interaction is modelled as a non-cooperative game giving rise to a Nash equilibrium.

The rest of the paper is organised as follows. Section 2 reviews the related literature and places this study within it. Section 3 outlines the model. Section 4 derives prices, productions and welfare at given taxes. Section 5 solves the tax game between countries. Section 6 discusses the results. Finally, section 7 concludes.

## 2. An overview of related literature

The empirical literature has mainly focused on studying APD impacts in the United Kingdom, Australia, Germany and Austria, the countries with the highest APD values in the OECD (TTF, 2013). The United Kingdom, Australia and Germany are net outbound tourism countries, and hence can be predominantly considered as tourism origins. The much smaller Austrian economy constitutes the only exception (Eurostat, 2013; Spörel, 2007; Australian Government, 2016).

Since barriers to air transport are forbidden by international aviation agreements (Pearce & Pearce, 2000; Steppler, 2011), APD has been mainly justified as environmental taxation for fixing externalities caused by the aviation sector (Greenair, 2010; Seetaram et al., 2014) —the Australian one, however, is aimed at financing border public agencies (TTF, 2012)—. In this respect, Pearce and