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Keynesian policies for tourism: taxation without coordination

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In this paper the authors investigate the effect of a Keynesian policy in tourism destinations where tourism products are mainly sold through 'direct sales' (decentralized solution) and the tourism market equilibrium is characterized by sticky prices and unemployment (coordination failure); thus the conditions for a Keynesian demand policy are verified. This policy is a Pareto improving solution with respect to the organization of sales by tour operators or destination managers (centralized solution), since tourism firms are not worse-off in terms of profits and there is an increase of tourism production as well as of employment.

Keywords: coordination failures; tragedy of the anticommons; tourism production; tourism destinations; Keynesian policies

JEL classification: D23; L83; H50; E61

Markets are often characterized by microeconomic and macroeconomic failures. One of the most frequent (and most studied in the literature) causes of inefficiency is the 'coordination failure'. It is well-known that microeconomic and macroeconomic failures yield a sub-optimal distribution of resources and

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a sub-optimal level of production and employment (allocative inefficiencies). If market correction mechanisms do not exist (decentralized solution), an external intervention is necessary to deal with both types of failures (centralized solution). In this paper, we propose a novel public intervention, using a simple Keynesian model, to overcome a coordination failure in a tourism destination when centralized solutions are not feasible and a decentralized solution is suboptimal.

In general, underproduction and unemployment are macroeconomic failures that occur when individual decisions on investments and savings are not coordinated (Keynes, 1936). In tourism destinations the non-coordination of the production choices by tourism firms involved in supplying the complementary goods and services that make up the 'tourism product' may also yield an analogous coordination failure.

A centralized solution to the coordination failure between tourism firms in a destination may be provided by (Andergassen *et al*, 2013): (a) the destination manager (policymaker) who can implement a 'cooperation policy' (exogenous coordination); or (b) the tour operator (private firm) that typically packages and markets the tourism product (endogenous coordination). These are Pareto improving solutions because they imply lower prices and higher profits with respect to the other solutions, but they are not always feasible because they require tourism firms that are willing to cooperate and charge flexible prices for their goods and services.

A decentralized solution to the coordination failure, when tourism destinations are characterized by 'direct sales', is an equilibrium in which each tourism firm serves its customers from its own individual supply (Álvarez-Albelo and Hernández-Martin, 2012). This is not a Pareto improving solution because it entails a macroeconomic failure within the tourism destination, in terms of underproduction and unemployment. In this case, the lack of coordination and price rigidity allows the destination manager to implement a Keynesian demand policy.

Keynesian macroeconomics has historically inspired the early studies of tourism economics, in both a theoretical and an empirical way. The 'Keynesian multiplier' has been frequently applied also in tourism economics to assess the effects of tourism expenditure on the destination's development. Similar to Keynesian macroeconomics, the conclusions of these studies are that an exogenous increase in aggregate demand (through additional tourism expenditure) stimulates the local economy's economic growth at different levels, which can be measured by the Keynesian multiplier (Candela and Figini, 2012). The most famous Keynesian example is that of a government making public investments, thereby causing (via the 'investment multiplier') amplified effects on industries producing both consumer goods and capital goods. Keynes's argument, in opposition to what he defined as 'classical' economics, becomes paradoxical when he says: 'Pyramid-building, earthquakes, even wars may serve to increase wealth, if the education of our statesman on the principles of classical economics stands in the ways of anything better' (Keynes, 1936, p 129). Keynes even suggested to policymakers freed from the classical economics mentality, that making workers 'dig holes in the ground paid for out of saving, will increase, not only employment, but the real national dividend of useful goods and services' (Keynes, 1936, p 220).

Despite this dominance of the Keynesian rationale in studies on tourism destination development, Keynesian policies are usually neglected, since neither Keynes nor the post-Keynesians specifically apply them to tourism (or to services in general). To fill this gap, in this paper we show that: (a) a Keynesian demand policy can also be implemented in tourism destinations (and more generally can be applied to services); and (b) this policy is a Pareto improving solution with respect to direct sales.

Tourism economics includes both a theoretical inspiration from Keynesian models and a lack of Keynesian policies, so in this paper we investigate the effects of a Keynesian demand policy in tourism destinations, when direct sales and price rigidity yield an equilibrium characterized by underproduction and unemployment. As in Keynesian theory, we show that an increase in public demand can expand the production of tourism products and thus employment in the tourism sector. We develop our analysis by a Keynesian model, where equations are purposely simplified without loss of generality, and investigate the effects of a Keynesian demand policy on tourism implemented by a policymaker subject to a balanced budget constraint. In particular, we refer to the Keynesian model of the 'Haavelmo Theorem' (Haavelmo, 1945), since we claim it is the most useful for describing a sustainable equilibrium of a tourism destination.

The remainder of the paper is organized as follows. In the next section, we apply the coordination theory to the tourism product, defined as an anticommon good. In the third section, we apply the Keynes-Haavelmo model within the framework of a tourism destination characterized by direct sales, and propose a numerical simulation of the policy for Italian tourism sector. Finally, the conclusions summarize our results.

Coordination policies: decentralized versus centralized solutions

In this section we develop a theoretical model to analyse the nature of tourism products as anticommon goods and compare three alternative solutions to the 'tragedy of the anticommons' in a tourism destination: direct sales (coordination failure), exogenous coordination and endogenous coordination. Then, using the game theory approach, we show that in a framework of direct sales the choices made by different firms could also be coordinated through the intervention of an external authority or tour operator.

A tourism product is a bundle of goods and services that are grouped according to the purpose of a given holiday. In a technical sense, the tourism product is a complex product composed of sets of complementary goods and services that visitors require during their stay at the holiday destination (Candela and Figini, 2012). In particular, a tourism product comprises the synergistic interaction among five separate components: physical plant, service, hospitality, freedom of choice and involvement (Smith, 1994). Since several tourism firms are often involved in jointly supplying these goods and services, coordination problems between the different economic agents may occur. Tourism destinations host a mix of different economic activities when tourists purchase complementary goods and services, which are bundled in a tourism product. For example, a tourist usually demands accommodation, meals and

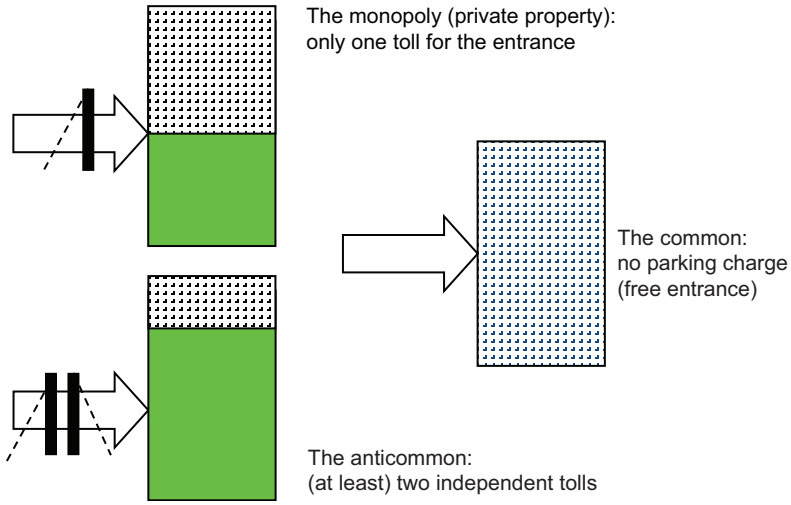

Figure 1. The parking lot example.

transportation services to and from the destination. A holiday in a tourism destination can therefore be interpreted as a 'permit to stay', provided by several firms supplying the goods and services demanded by tourists (Candela *et al*, 2008; Álvarez-Albelo and Hernández-Martin, 2012; Andergassen *et al*, 2013). A good having numerous ownership rights is known in the literature as an anticommon good.[1] The anticommon good is characterized by many fragmented ownership rights and is the opposite of a common good (or common property), which conversely is characterized by the absence (or imprecise definition) of property rights since it is freely available to all (Hardin, 2009).

The most famous and intuitive illustration of these concepts comes from the example of property rights on a parking lot (Buchanan and Yoon, 2000). This example allows us to introduce both the *common* and the *anticommon theorems*, two market failures known in the literature as 'tragedies'. Different allocations of property rights on the parking lot may exist: absence of property rights (common good), only one property right (monopoly), or multiple (at least two) property rights (anticommon good). Whoever wishes to use the parking lot must pay a toll to the owner.

Figure 1 shows the parking lot example. The arrows point at the entrance gates of the parking lots which are controlled by a gate that opens only with the payment of a toll. The grid areas show the portions of the total areas which are occupied by cars, which depend on the parking toll. In the monopoly case, the monopoly toll maximizes the income of the single owner and there is a balance between free and occupied area. In the common good case, the parking toll is clearly equal to zero, while in the anticommon good case there are (at least) two independent parking tolls, so that the overall parking toll is higher than the monopoly one. Both the common and the anticommon solutions are inefficient, but for different reasons. The 'tragedy of the commons' consists in

an overexploitation of the free parking lot: since the good is freely available to all, the common use may exceed the capacity of the resource and the common good may be overused or destroyed. On the contrary, the 'tragedy of the anticommons' consists in an underutilization of the parking lot due to the overly high price: with many fragmented ownership rights, a socially efficient outcome may not be possible.

Since a holiday can be interpreted as an anticommon good – a bundle of goods and complementary services supplied by several tourism firms – the supply prices of the tourism goods and services depend on the organization of tourism firms. Thus, the 'tragedy of the anticommons' in tourism occurs in the case of a lack of coordination between the owners of the goods and services bundled in the tourism product. The organization through direct sales implies market equilibra with sub-optimal (higher) prices of the tourism products, lower profits for firms, underproduction and unemployment. A Pareto improving solution to overcome the 'tragedy of the anticommons' in a tourism destination is the coordination among tourism firms (by the destination manager or by the tour operator) which can mimic the solution of the single owner and increase tourism profits.[2] The coordination solution implies an increase in efficiency, a decrease of the tourism products prices, an increase in tourism demand, higher firm revenues, and even more employment in the tourism destination. Let us then verify the necessary conditions for this coordination to take place, and when these conditions are feasible.

A simple model is sufficient to develop our analysis. Let us assume in the tourism destination there are two firms: the hotel, indicated by the subscript h, supplying overnight stays but not meals, and the restaurant, indicated by the subscript r, supplying meals but not overnight stays. Under this assumption, the tourist who wants to stay at the destination must purchase two separate tourism services, one from each firm, and essentially create his or her own tourism product. Neither firm satisfies the entire tourist demand for both services: this situation may prevent holidays at the destination. The prices of tourism services are p_h and p_r, respectively for the hotel and the restaurant. The tourism product, consisting by assumption of a unit of both tourism services, has a price v equal to $v = p_h + p_r$. To keep the model as simple as possible, let us assume the tourism demand, in terms of overnight stays P, is equal to $P = a - bv = a - bp_h - bp_r$. Finally, we assume that production costs are equal to zero. These assumptions allow us to keep the model as simple as possible, without loss of generality.

Let us now analyse three possible scenarios: (a) direct sales (coordination failure); (b) exogenous coordination; and (c) endogenous coordination. Starting from the case of lack of coordination (direct sales) we present all scenarios using the organization by direct sales as reference point for our argument.

Direct sales

In the first scenario, each tourism firm serves its customers with its own supply. Therefore, the maximization programmes of the two firms, hotel and restaurant, are:

$$\max_{p_h} \pi_h = p_h P = p_h(a - bp_h - bp_r) \tag{1}$$

$$\max_{p_r} \pi_r = p_r P = p_r(a - bp_b - bp_r), \tag{2}$$

where π_b and π_r are the profit functions of the two firms.

The solutions of these programmes is a Cournot–Nash equilibrium, and the first-order conditions of Equations (1) and (2) are:

$$\frac{\partial \pi_b}{\partial p_b} = g_b(p_b,p_r) = 0 \tag{3}$$

$$\frac{\partial \pi_r}{\partial p_r} = g_r(p_b,p_r) = 0, \tag{4}$$

where $g_b(p_b,p_r)$ and $g_r(p_b,p_r)$ are the reaction functions of the two firms.

The solution of the system of Equations (3) and (4) is given by the equilibrium prices p_b^* and p_r^*, and the overnight stays $P^*(v^*)$ so that the overall profit of the tourism destination is equal to $\Pi^* = \pi_b^* + \pi_r^*$. With our specific demand function, the solution is given by the prices $p_b^* = p_r^* = a/3b$. The tourism product's price of the destination is then given by $v^* = 2a/3b$, which implies a number of overnight stays equal to $P^* = a/3$. The tourism firms altogether obtain the total profit $\Pi^* = 2a^2/9b$.

Exogenous coordination

In the second scenario, the prices of the tourism services are chosen through an exogenous coordination of the tourism firms by an authority that acts 'outside' the market (exogenously to the market), but 'inside' the tourism destination (endogenously to the destination) – for example, the destination manager, the local municipality or more generally the policymaker. In other words, we assume that the destination is governed by an authority that offers both tourism services (accommodation and meals) bundled in only one package tour, setting a unique price. This solution is similar to the monopolistic scenario, overcoming the 'tragedy of the anticommons' and improving the efficiency: the firms charge lower prices for their tourism services, and they obtain higher profits. To implement this solution the destination manager needs to perform the following actions: (a) coordinate the firms supplying the goods and services which make up the tourism product; (b) charge the final price of the tourism product; and (c) allocate the final price shares going to each good and service bundled in the final tourism product. Since the hotel and the restaurant costs are symmetrical (that is, their production costs are zero) by assumption, the destination manager charges equal prices for both firms, $p_b^\circ = p_r^\circ$.

The maximization programme of the policy maker for the destination with exogenous coordination is the following:

$$\max_{p_b,p_r} \Pi = vP = p_b P + p_r P, \tag{5}$$

the optimal solution of which is given by the following system of first order conditions:

$$\frac{\partial \Pi}{\partial p_h} = g_h(p_h,p_r) + p_r \frac{\partial P}{\partial p_h} = 0, \tag{6}$$

$$\frac{\partial \Pi}{\partial p_r} = g_r(p_h,p_r) + p_h \frac{\partial P}{\partial p_r} = 0. \tag{7}$$

The firms' price solutions for this system of equations are, respectively, p_h° and p_r°. If we compare the system of Equations (6) and (7) and the systems of Equations (3) and (4), given that the addends

$$p_r \frac{\partial P}{\partial p_h} \text{ and } p_h \frac{\partial P}{\partial p_r},$$

are both negative, we can say that $p_h^\circ < p_h^*$ and $p_r^\circ < p_r^*$, $v^\circ < v^*$ and $P^\circ > P^*$, so that finally $\Pi^\circ > \Pi^*$. With respect to direct sales, the price of the tourism product decreases to $v^\circ = a/2b$, the overnight stays increase to $P^\circ = a/2$, and the prices of the single services are lower: $p_h^\circ = p_r^\circ = a/4b$; finally, the profits become higher for both firms: $\pi_h^\circ = \pi_r^\circ = a^2/8b$. In conclusion, comparing direct sales with exogenous coordination, the price of the final tourism product is too high, and consequently there are lower overnight stays, employment and profits.

Endogenous coordination

In the third scenario, the organization of tourism firms (hotel and restaurant) is carried out through a solution which is internal (endogenous coordination) to the market, rather than through an external authority: a new tourism firm arises, the tour operator specialized in package tours. This new firm offers contracts to hotels and restaurants and insures them against market risk by guaranteeing them a discounted price, where the discount is the risk premium and the services are purchased in advance (Castellani and Mussoni, 2007). Let d_h and d_r be the discounts for the contracts provided, respectively, and for the hotel and restaurant services, which are then bundled into one single package tour (the tourism product). The hotel and the restaurant accept the tour operator offer, despite the discount, only if they obtain revenues which are no lower than with direct sales. This solution to coordination failure is more efficient with respect to the direct sales solution, overcoming the anticommon problem.

The maximization programme of the tour operator requires the maximization of its profit subject to the two firms' participation constraints:

$$\max_{p_h,p_r} \Omega = vP - (p_h - d_h)P - (p_r - d_r)P, \tag{8}$$

$$\text{s.c.}(p_h - d_h)P \geq \pi_h^*;\ (p_r - d_r)P \geq \pi_r^*,$$

where Ω is the profit function of the tour operator.

If we assume, as usual, that the tour operator offers the hotel and restaurant the minimum profit for their participation (that is, we assume binding constraints), the programme becomes:

$$\max_{p_h, p_r} \Omega = vP - \pi_h^* - \pi_r^*. \tag{9}$$

The optimal solution of the endogenous coordination is given by the same first order conditions in Equations (6) and (7) of exogenous coordination, and therefore the solutions are the same:[3]

$$\frac{\partial \Omega}{\partial p_h} = \frac{\partial \Pi}{\partial p_h} = 0, \tag{10}$$

$$\frac{\partial \Omega}{\partial p_r} = \frac{\partial \Pi}{\partial p_r} = 0. \tag{11}$$

We can therefore conclude that, through the endogenous coordination in the market, the tour operator mimics the intervention of an external authority.[4] Then, if we compare the solutions of the direct sales programme with the two coordination programmes, we can claim that both exogenous and endogenous coordination allow us to overcome the 'tragedy of the anticommons', improving the efficiency of the tourism destination, and increasing production as well as employment.

However, the coordination solutions, having non-neglectable economic, social and political implementation costs, could be technically unfeasible. For example, sometimes they are not feasible because of the conflicting interests of the different stakeholders, sometimes they are not even economically profitable because the managerial costs for the coordination activity could overcome the benefits in terms of efficiency gains.

Furthermore, in a framework of direct sales the different firms are unable to coordinate by themselves without an intervention of an external authority or of a tour operator. To verify this claim, we can use a game theory approach, by assuming that the alternative firm strategies are: 'confirming' or 'decreasing' the direct sales price. For simplicity, we use discrete and dichotomous variables instead of continuous ones, and we assume that the alternative prices to be chosen by firms are: direct sales price (high price) $p_h^* = p_r^* = a/3b$; and coordination price (low price) $p_h^\circ = p_r^\circ = a/4b$. In this way, we can compute the firms' profits in each of the four possible scenarios, as shown in the payoff matrix in Table 1.

Since the hotel payoffs are characterized by the inequalities $5/36 > 1/8 > 1/9 > 5/48$, and since the restaurant payoffs have analogous properties, it follows that the game of Table 1 represents a typical prisoners' dilemma problem. If the restaurant supplies the meal at the higher price $p_r^* = a/3b$, for the hotel it is more profitable to sell the allotment at the higher price $p_h^* = a/3b$, since its profit $\pi_h^{**} = a^2/9b$ is higher than $\pi_h^{\circ *} = 5a^2/48b$. If instead, the restaurant supplies the meal at the lower price $p_r^* = a/4b$, for the hotel it is still more profitable to maintain the higher price $p_h^* = a/3b$, since its profit

Table 1. Payoff matrix: tourism firms' profits.

		The restaurant (*r*)	
		$p_r^* = a/3b$	$p_r^\circ = a/4b$
The hotel (*h*)	$p_h^* = a/3b$	$\pi_h^{**} = a^2/9b$; $\pi_r^{**} = a^2/9b$	$\pi_h^{*\circ} = 5a^2/36b$; $\pi_r^{*\circ} = 5a^2/48b$
	$p_h^\circ = a/4b$	$\pi_h^{\circ *} = 5a^2/48b$; $\pi_r^{\circ *} = 5a^2/36b$	$\pi_h^{\circ\circ} = a^2/8b$; $\pi_r^{\circ\circ} = a^2/8b$

$\pi_h^{*\circ} = 5a^2/36b$ is higher than $\pi_h^{\circ\circ} = a^2/8b$. The same reasoning also holds, with the necessary modifications, for the restaurant (depending on the price charged by the hotel), so that the dominant strategy for both firms (the Nash equilibrium) is 'confirming' the price.

In conclusion, the Nash equilibrium of the game is $p_h^* = p_r^* = a/3b$, a stable but inefficient equilibrium: for both tourism firms it is not profitable to eliminate the direct sales strategy (that is, to decrease their supply prices), even if the alternative coordination strategy would yield higher profits for both of them. To obtain the coordination solution, the intervention of an external authority (policymaker) or of a 'coordinating' firm (tour operator) is necessary.[5]

However, when in a tourism destination the endogenous or the exogenous coordination solutions are not feasible, and the direct sales without coordination is the only possible solution, the future of the destination may be characterized by tourism underproduction and unemployment. For this reason, therefore, it is useful to investigate which alternative policies may be enacted by the destination manager to avoid that scenario.

Keynesian demand policy: a tourism application

In this section, we suggest a public intervention to overcome Keynesian market failures in a tourism destination where tourism firms charge their own supply prices (direct sales), since they are 'trapped' in a typical prisoner's dilemma problem. As in the Keynesian model, this market failure implies underproduction due to the unemployment and underutilization of capital; therefore, we can apply the logic of Keynesian demand policy to increase both production and employment. Finally, we present an application of Keynesian demand policy to the Italian tourism sector.

To model our suggested policy, we recall the above-mentioned private tourism demand function, $P = a - bv$, and we assume the possibility for the policymaker to purchase tourism products $G > 0$ (public spending). In this way, the total tourism demand becomes $P_T = P + G$, where the subscript T indicates the total tourism product.

We also assume that the destination manager finances the public spending by introducing a tax $t \in (0,1)$ on firms' profits π_h and π_r. According to the Keynes–Haavelmo model, we apply a long-run perspective to the Keynesian demand policy, by assuming the government is subject to the following balanced budget constraint:

$$t(\pi_b + \pi_r) - vG = 0. \tag{12}$$

Since the firms' revenues now depend on total demand (rather than only on private demand), the firms' profits become $\pi_b = p_b P_T$ and $\pi_r = p_r P_T$. Therefore, Equation (12) becomes:

$$t(p_b + p_r)P_T - vG = 0, \tag{13}$$

where the public spending is defined as $G = tP_T$ and, by substitution, the total tourism demand becomes:

$$P_T = \frac{P}{(1 - t)}. \tag{14}$$

Equation (14) implies that tourism firms may *ex ante* change their behaviour, because they may anticipate the public policy when making their decisions. Thus, the maximization programme of the hotel, Equation (1), now takes into account the tax (by substituting Equation (14)) and becomes:

$$\max_{p_b} \pi_b = p_b P_T(1 - t) = p_b P. \tag{15}$$

The analogous maximization programme for the restaurant, Equation (2), becomes:

$$\max_{p_r} \pi_r = p_r P_T(1 - t) = p_r P. \tag{16}$$

Given maximization programmes of the two firms, we can obtain the same equilibrium of direct sales in terms of equilibrium prices and private demand: $p_b^* = p_r^* = a/3b$; $v^* = 2a/3b$ and $P^* = a/3$ (that is, higher prices, lower overnight stays, employment and profits). However, we still have to complete the model by making explicit the role played by public demand (the policymaker's demand), finding the equilibrium values G^* and t^*.

Let us assume $P_T^* = P^\circ$ is the fixed target of the destination manager; that is, the policymaker wants to achieve the same tourism production and employment that would be achieved with (endogenous or exogenous) coordination and prices flexibility. Therefore, we set $P_T = P^\circ = a/2$ into the previous Equation (14) and taking into account the direct sales equilibrium, $P^* = a/3$, we obtain the following condition:

$$P^\circ = \frac{a}{3(1 - t)}, \tag{17}$$

from which we obtain the equilibrium tax rate $t^* = 1 - a/3P^\circ > 0$, while from the balanced budget constraint (Equation (13)) we obtain the equilibrium public spending on tourism products $G^* = tP^\circ > 0$.

Figure 2 depicts the equilibrium of our model with a Keynesian demand policy. In particular, Figure 2 explicitly represents the effect of fiscal intervention

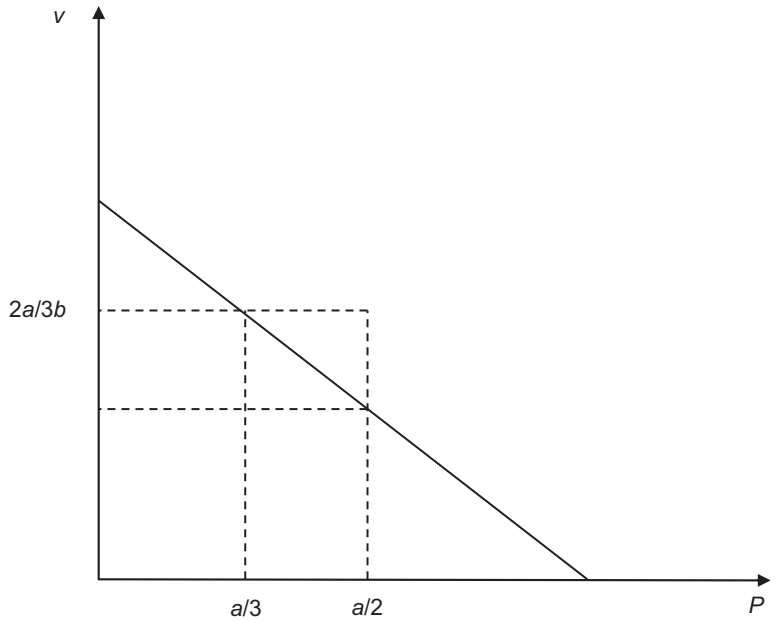

Figure 2. The Keynesian demand policy for tourism.

(a tax on firm's profits used to finance public spending) by the policy maker to increase the tourism production up to the target point, and thus increase tourism employment, in the absence of coordination.

Starting from an equilibrium in which both the demand and the production of private firms are equal to $P^* = a/3$, that is lower than the optimal coordination production $P^\circ = a/2$, and the supply prices are downwards sticky at the level $v^* = 2a/3b$, then it is possible to increase both tourism production and employment through public spending in tourism products by the policymaker. Thus, the equilibrium values of the public intervention of the policymaker are: the tax rate on profits is equal to $t^* = 1/3$, and the purchase of tourism products is equal to $G^* = a/6$.

The individual profits of both firms remain equal to direct sales profits $\pi_b^* = \pi_r^* = a^2/9b$, since the higher revenues obtained from the additional public demand perfectly offset the tax paid by firms. In particular, even if the overall price of the tourism product remains equal to $v^* = 2a/3b$, the total tourism production is now $P_T = a/2$, because the tourism demand is given by the sum of the private demand $P^* = a/3$, and of the public demand $G^* = a/6$. In this way, without any coordination among tourism firms, the destination manager reaches the fixed target of higher production and employment in the destination.

Finally, to complete the description of the new equilibrium obtained through this fiscal policy, we analyse the policymaker's budget. The policymaker purchases (exogenous public demand) an amount of tourism products equal to $G = a/6$, with the total public spending equal to $G^*v^* = 2a^2/18b$, which is

Table 2. A numerical simulation: the case of Italy.

Visitor tax revenues (2012)	About €163,000,000
Number of annual overnight stays of foreign tourists in Italy (2012)	About 180,000,000
Potential annual tax visitor revenues (with tax rate equal to €0.5)	About €90,000,000
Value of tourism voucher (price of tourism product)	€60
Potential additional overnight stays of foreign tourists (2012)	About 1,500,000

financed by an equivalent tax yield equal to $t^*v^* = 2a^2/18b$. Therefore, the public budget is balanced, and the level of employment is sustainable in the long run.

A possible application of Keynesian demand policies to tourism sector is provided by the visitor tax, a tourism tax on overnight stays which was reintroduced in Italy in 2011.[6] The Italian municipalities may introduce a visitor tax charged on people staying in hotels located on their territory, and use the collected tax to finance interventions in the tourism sector, including those in support of hotels.[7] This allocation of visitor tax revenues is consistent with the Keynesian demand policy presented in this paper. In fact, the collected visitor tax could be used to purchase tourism products in the destination (for example, through tourism vouchers) and the tax revenues would be used in favour of the hotels such that their total profit would not change. In this way, it would be possible to increase the overnight stays and the employment in the tourism destination.

Let us present a simple numerical simulation to observe the potential results of such a policy in the framework of Italian tourism destination (Table 2).

In Italy more than 300 municipal authorities collected the visitor tax in 2012, primarily at seaside resorts. In 2012, those municipalities collected approximately €163 million (compared to a budgeted €192 million). Some municipalities have set the visitor tax as a fixed tax on the price per overnight stay while several municipalities have set the tax rate as a percentage of the price per overnight stay (between 2.8% and 4.5% of the price per overnight stay).[8] In 2012, the total overnight stays of foreign tourists in Italy (private demand) was about 180 million (Italian national statistical institute-ISTAT), which implies annual tax revenue of about €90 million. Assume that a tourism voucher to stay in Italy equals €60 (hypothetical price of tourism product). Using the Keynesian demand policy we obtain the number of additional overnight stays by foreign tourists (public demand) equal to 1.5 million (€90 million/€60), which implies an increase of around 1% on the total annual overnight stays by foreign tourists (private demand).[9]

Conclusion

Our Keynes–Haavelmo model in a framework of direct sales and price rigidity allows a Keynesian policy for tourism destinations as an alternative solution to exogenous or endogenous coordination, when these solutions cannot be implemented (coordination failure). If the destination manager cannot directly

change tourism firms' supply prices, it can increase tourism production as well as employment, through an intervention on the exogenous component of tourism demand. This policy is a Pareto improving solution with respect to direct sales, since tourism firms are not worse-off (they obtain the same profit) and employees in tourism sector are better-off (in the destination there is a decrease in unemployment). Furthermore, this Keynesian demand policy can also be extended to all services and the tertiary industry.

In this paper, we propose a direct and an indirect intervention on the exogenous component of tourism demand. The destination manager could directly purchase the tourism products, or indirectly purchase a given number of tourism vouchers.[10] The tourism vouchers could be destroyed by the destination manager, as suggested by Keynes, but in tourism it is possible to do something better than 'to fill old bottles with banknotes, bury them at suitable depths in disused coalmines which are then filled up to the surface with town rubbish' (Keynes, 1936, p 129). For example, the destination manager could use the tourism vouchers to promote the tourism destination in 'new' markets, to favour off-season tourism, or even 'social' or 'fair' tourism (for example, for families who cannot afford a holiday at the market prices).[11]

A possible application of Keynesian demand policy to the tourism sector is the Italian visitor tax, a tourism tax on overnight stays. A numerical simulation for Italy shows that a tourism voucher equal to €60 (financed by visitor tax revenues) could stimulate a 1% increase in the total annual number of overnight stays by foreign tourists.

In conclusion, in a framework of direct sales a Keynesian demand policy increases production and employment, without modifying the supply prices of the tourism product. The Keynesian policy is Pareto improving solution with one degree of freedom for the policymaker: he or she can choose a direct or an indirect intervention on the exogenous component of tourism demand. Moreover, the choice of purchasing tourism vouchers to attract new tourists (indirect intervention), allows the destination manager to stimulate a certain degree of competition between hotels. In fact, in this way the hotels need to compete to attract the tourists holding tourism vouchers, limiting the potential 'rent-seeking activity' of the hotels and defending the 'consumer sovereignty' of the tourists.[12]

A possible extension of our work would be an investigation of the empirical effects of introducing a tourism tax in a specific country. Specifically, an analysis on the empirical effects of the recently introduced tourism tax in Italy, could represent an ideal case study to evaluate the implementation of a Keynesian policy in tourism markets. A further extension of our work could develop the theoretical model by introducing a tourism tax only on hotel prices to finance vouchers which are limited to the purchase of the accommodation services.

Endnotes

1. The concept of anticommon goods was introduced by Michelman (1982) and developed by Heller and Eisenberg (1998) and Heller (1999). For a more detailed analysis, see Parisi *et al* (2004 and 2005).
2. This solution is known in the literature as a 'coordination theorem' for tourism destinations (see also Candela and Figini, 2012; Andergassen *et al*, 2013).

3. This property has a general value, and can be verified for any profit $\pi = \pi^*$ that the tour operator may want to leave to tourism firms.
4. With endogenous coordination, however, there is also a distributional problem: the tour operator needs to allocate the efficiency gains between the hotels and restaurants (Candela *et al*, 2008; Andergassen *et al*, 2013). The distributional conflict notwithstanding, endogenous coordination is more efficient than direct sales.
5. The 'folk theorem' states that if the game is infinitely repeated it is possible to reach a cooperative solution, but the solution depends on the interest rate, and therefore it would be neither a general nor stable solution with respect to interest rate shifts.
6. In Italy, the visitor tax was first introduced in 1910 for spa, health and seaside resorts (Law No 863 of 11 December 1910), then in 1938 it was extended to all tourism destinations (Law No 739 of 2 June 1939). Next, the visitor tax was abolished in 1989 (Law No 144 of 24 April 1989, concerning the reorganization of regional finance) and finally reintroduced in the city of Rome (Law No 122 of 30 July 2010) and then in the rest of Italy the following year (Legislative Decree No 23 of 14 March 2011). In line with the most recent reforms, the current Law rules the visitor tax, besides being a municipal tax, as a 'purpose tax'. Previously, also the Law No 296 of 27 December 2006 allowed municipalities to finance 30% of public works, tourism events, urban mobility projects and other local public expenditure, by levying an additional local tax on real estate and second homes, for a maximum of five years.
7. 'The provincial capitals, unions of municipalities and municipalities included in the regional lists of tourism destinations or Cities of Art, may introduce, with consent of the city council, a visitor tax charged on the tourists staying in accommodation facilities located on their territory. The tax is gradually imposed up to a maximum of €5 per overnight stay, in proportion to the price. The tax yield is intended to finance interventions in the field of tourism, including those in support of accommodation facilities, as well as maintenance, use and recovery of cultural heritage and local environmental goods, and the corresponding local public services' (Article 4, Paragraph 1, of Legislative Decree No 23 of 14 March 2011).
8. For example, in the seaside resort of Rimini (Italy), the visitor tax ranges from €0.5 up to €2.5 per overnight stay.
9. In 2012 the overnight stays in Italy by Italian and foreign tourists equalled 200,947,161 and 180,465,067 (ISTAT), assuming that the visitor tax was €0.5, the expected annual tax would be €190,706,114.
10. With both types of intervention, however, the destination manager needs to avoid the risk of crowding out either the potential or the current private tourism demand.
11. Alternatively, the tax revenues could be used for public investments, like investing in tourism infrastructures.
12. The 'rent-seeking' argument was introduced in the economic literature by Krueger (1974), though first studied by Tullock (1967).

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