

On Natures' Shoulders: Riding the Big Waves in Nazaré

Maria A. Cunha-e-Sá*, Rita Freitas*, Luis C. Nunes*, and Vladimir Otrachshenko**^a

* Nova School of Business and Economics, Campus de Campolide, 1099-032 Lisbon, Portugal

♦ Graduate School of Economics and Management, Ural Federal University, Mira 19, 620000 Yekaterinburg, Russia

^aCorresponding author's email: vladotr@novasbe.pt

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Abstract

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JEL Codes: Z32, Z38

Keywords: Big Waves; Counterfactual Analysis; Impact Evaluation; Tourism

1. Introduction

Survey data are often used to estimate the impact of natural or cultural attractions (i.e. parks, wildlife, heritage, waves, etc.), or of the campaigns undertaken to make them known to the public, on local economies. Examples are provided by Drimil et al. (2017), Duffy (2014), Jeong et al. (2015), Saayman and Saayman (2010) (on the impact of state and national parks, and of wildlife), Stoeckl et al. (2010) (on the impact of live-board dive boats in the Great Barrier Reef), Lacher et al. (2013), Felsenstein and Fleischer (2003) (on the impact of heritage, cultural attributes, and local festivals), among others. However, many of the studies that attempt to evaluate those impacts ignore the baseline scenario, that is, they do not take into account what would have happened in the absence of those attractions or media campaigns.^{1,2} In contrast, counterfactual analysis is today accepted as the best approach in policy evaluation since it aims at establishing the cause-and-effect relationship between a particular policy intervention and the resulting outcomes. However, even the simplest evaluations are often quite demanding in terms of the resources and the time needed to be implemented, which may explain why formal evaluation studies are still uncommon (see Curzon and Kontoleon, 2016).

In this study we show how a relatively simple counterfactual analysis can be implemented using regional statistical data on domestic and international tourist arrivals. We look at the particular case of a media campaign on big waves and its impact on the local economy of Nazaré.

Over the centuries, the big waves in Nazaré, an old fishing community on the western coast of Portugal (Oeste region), have been considered a threat to fishermen. But in 2010 the municipal company *Nazaré Qualifica* and the municipality of Nazaré launched a three-year media campaign involving private and public institutions to promote the big waves and tourism in the region. After this marketing media campaign the site became a more popular tourist destination. By providing

the required “informational media infrastructure” that campaign allowed for the worldwide recognition of the value of the big waves.³

The purpose of this study is to estimate the economic impact of that campaign on the local economy of Nazaré, using the number of arrivals in hotels between 2011 and 2014. Ideally, the impact of the “Big Waves” on the local economy would be measured by comparing the evolution of tourism in Nazaré with and without the big wave campaign. Since it is not possible to observe what would have happened without the campaign, we use a counterfactual analysis. We compare the counterfactual number of tourist arrivals in Nazaré with the observed data, accounting for confounding factors, such as the recent tourism boom in Portugal and the proximity to the two largest cities in Portugal (i.e. Lisbon and Oporto).⁴ We also disentangle international and domestic arrivals from total arrivals, in order to understand how the media campaign impacted the two groups.

In the Oeste region, municipalities are relatively small and located very close to each other. Therefore, the big wave media campaign in Nazaré might have also affected tourist inflows to adjacent coastal municipalities. Since those municipalities have also been considered in the construction of our counterfactual measures, we further adapt our counterfactual analysis to account for such potential spillover effects.

In this study we also go beyond the traditional impact evaluation analysis in the literature and compare the revenues to the costs incurred with the “Big Waves”. As stated by Felsenstein and Fleischer (2003), a large local, expenditure-driven impact is not enough to infer the local gains, as taxpayers’ money is often spent on helping in the organization of local activities. The authors conclude that only few studies take the costs into account, and, therefore, do not allow to fully estimate the impact on the local economy.

In addition, we show how this campaign has contributed to reduce seasonality in the municipality, an important concern of the Portuguese and EU policy makers for the tourist sector (see Turismo-2020, 2013 and 2015; Eurostat, 2014).⁵ Based on these empirical findings, we discuss policy implications to the Oeste region that may help to reduce seasonality.

The remainder of the paper is organized as follows. Section 2 presents the case study. Section 3 describes the data and the methodology. Estimation results are discussed in Section 4, while Section 5 provides policy implications. The last section offers final remarks. Ancillary tables are presented in the Appendix.

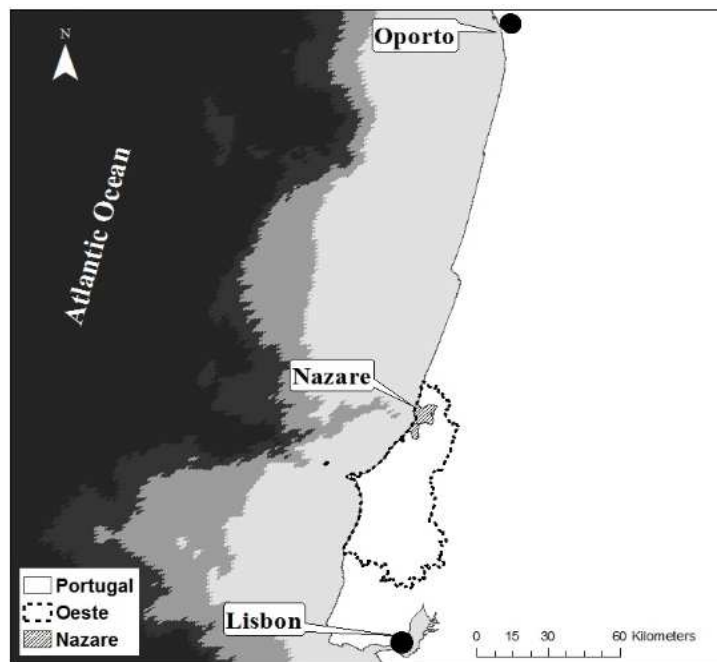
2. Case Study

Nazaré is a small fishing town with an area of about 95.7 Km², located on the west coast of Portugal in the Oeste region. It is located about 120 Km to the north of Lisbon and 220 Km to the south of Oporto (see Figure 1). Its population is 12,810 inhabitants (INE Census, 2011).

In this Atlantic region the climate is temperate. It has a low thermic amplitude throughout the year. The summer months are usually dry while the winter months are rainy. This town is located in a typhonic valley and has long beaches along the bay (CMN-CLASNZR, 2005). Praia do Norte is a well-known beach because of its big wave, which are due to the Nazaré Canyon, a seafloor feature that contributes to the uniqueness of the region.

The Nazaré Canyon cuts into the relatively narrow continental shelf at the Western Iberian Margin, between 39°20' and 39°40' N, and is oriented roughly perpendicular to the coast (running therefore in the East-West direction). This is one of the largest canyon systems in Europe with depths from 100 m to 5000 m in the Atlantic Ocean, affecting all ecosystems in Nazaré (Vitorino et al., 2002; Quaresma et al., 2007; Relvas et al., 2007).

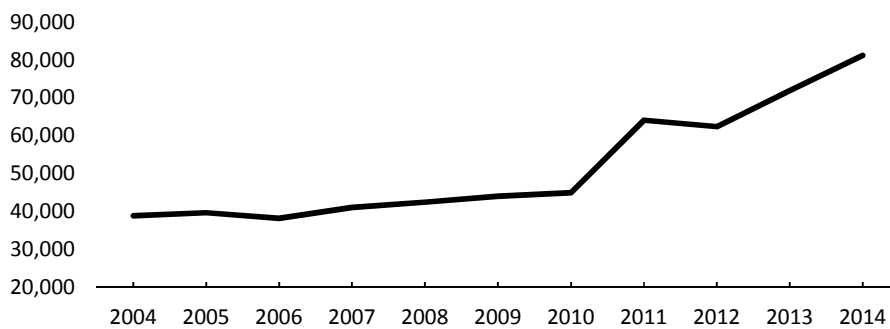
Figure 1: Nazaré's Location



Source: Authors' calculations using data from Direção Geral do Território (2016) and Quaresma and Pichon (2013).

In the past, tourism demand in Nazaré was driven by religious beliefs, attracting many pilgrims to the Baroque Sanctuary of Our Lady of Nazaré, whose history dates back to the 14th century. Nazaré has become a popular seaside resort with its traditional and cultural charm. The most recent attraction is the big waves in Praia do Norte. Figure 3 reports the gradual increasing trend in Nazaré's tourism in recent years.

Figure 3: Number of tourist arrivals in Nazaré



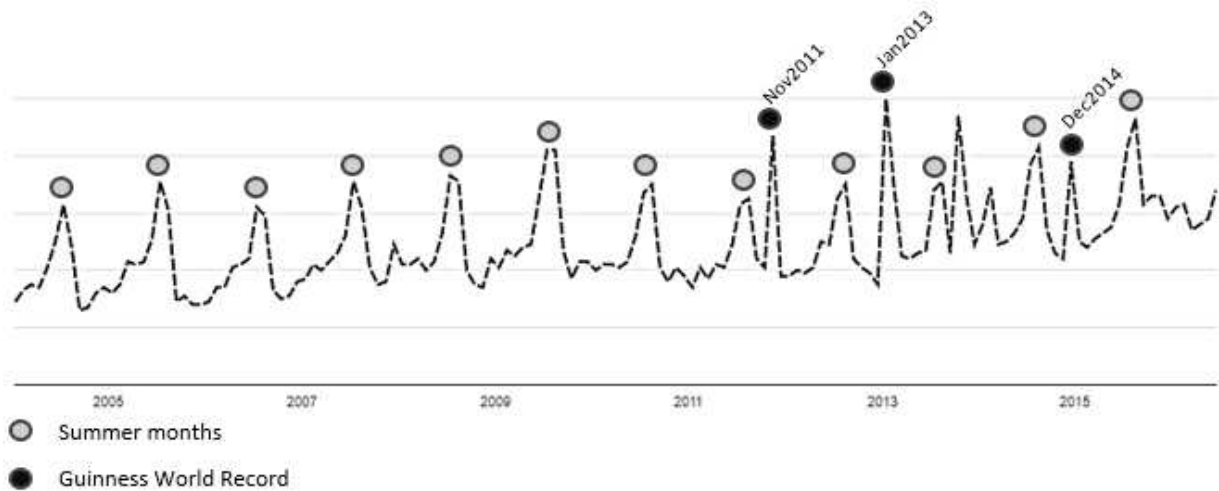
Source: INE (2015).

In 2007 the Nazaré municipality established a public firm, *Nazaré Qualifica*, to promote regional tourism and increase its competitiveness with respect to other worldwide tourist destinations. In 2009, Nazaré hosted for the first time the National Surfing Championship and the national bodyboard competition, “Sumol Nazaré Special Edition”. While the bodyboard competition was focused on the big waves of Nazaré, the National Surfing Championship was focused on normal size waves. According to *Nazaré Qualifica*, the bodyboard event was more successful in attracting tourists than the National Surfing Championship. For that reason, *Nazaré Qualifica* focused on promoting Nazaré as a destination where the big waves are advertised as a unique feature of nature.

As mentioned above, the big waves gained greater public awareness only after 2010, when *Nazaré Qualifica* and the municipality of Nazaré launched a media campaign to promote them. This surfing competition was mainly sponsored by a telecom company, ZON, and was held three times between 2010 and 2012.⁶ High profile surfers, such as Garrett McNamara, were invited to surf those waves. Those elite surfers broke three Guinness World Records (2011), and earned many “The XXL Big Wave Awards” nominations from the World Surf League (WSL). Moreover, from 2016 on, Nazaré has been included in the World Surf League Tour.⁷

After these municipal campaigns, Nazaré was recognized as a worldwide spot for big wave surfing, increasing its popularity as a tourist destination. This can be confirmed by using the Google search for the Nazaré destination. The Google trend search for “Nazaré Portugal” between 2006 and 2015 is in Figure 4, showing the number of searches relative to the highest number of searches over the period examined herein.

Figure 4: Public interest trend "Nazaré Portugal"



Source: www.google.com/trends, 27th June 2016

As shown in Figure 4, an upward trend of searches started after 2011, that is, when the Guinness World Record by Garrett McNamara was registered. The peak occurred in January 2013, when the Second World Record in Nazaré by Garrett McNamara was submitted (though not yet registered). Overall, this upward trend of searches may suggest that the campaign launched in 2010 has contributed to the worldwide recognition of the value of the big waves provided by the ecosystem in Nazaré. This can also be confirmed by using Google Trends for the search term “Nazaré Big Waves” between 2006 and 2015, in which searches are observed only after 2010 (see Figure 5).

Figure 5: Google Trends on “Nazaré Big Waves”



Source: www.google.com/trends, 27th June 2016

In 2013 the Portuguese Government's strategic plan for tourism also included the "Big Waves" in Nazaré as a potential attribute to increase the country's competitiveness with respect to other world destinations (PENT, 2012). The program entitled "The National Strategic Plan for Tourism 2013-2015" (PENT, 2012) aimed at promoting sustainable growth in the tourism sector, and in particular at developing and promoting tourism with a focus on recreational and aesthetic services such as sun, beaches, gastronomy, health and nautical tourism. It was later replaced by the Turismo-2020 program. Its main goal is to promote Portugal as one of the top ten tourist destinations in the world. Currently, according to the Travel and Tourism Competitiveness Index⁸, Portugal is in 15th place, following Canada, Singapore, Austria, Hong Kong, and the Netherlands.

3. Methodology and Data

In this study we use data from Statistics Portugal (INE) from 2004 to 2014. These data account for arrivals at different types of establishments such as hotels, hostels, pensions, and others.⁹

In order to estimate the impact of the "Big Waves" on the local economy, we compare the evolution of tourism in Nazaré with and without the media campaign. Since it is not possible to observe what would have happened without the campaign, we use a statistical methodology known as counterfactual analysis (Khandker et al., 2009; Asian Development Bank, 2011). Examples of this approach in the tourism literature are provided by Felsenstein and Fleischer (2003), who estimate the impact of local festivals on economic growth in northern Israel, and by Smeral and Weber (2000), who estimate the impact of political events on the regional tourist flow in 20 countries.

The general objective of a counterfactual analysis for policy evaluation is to establish a cause and effect relationship between a particular intervention and the resulting outcomes. In this study the intervention is the media campaign on the big waves and the outcome considered is the number of tourist arrivals in Nazaré. Counterfactual scenarios are used to estimate the number of tourists that

Nazaré would have attracted in the absence of the media campaign. A retrospective analysis prior to the media campaign is undertaken by selecting particular comparison groups that provide suitable baselines representing the hypothetical situation without intervention. Before proceeding with the discussion of the methodology, it is also worth keeping in mind that the media campaign started in Autumn 2010 and ended in 2012. Thus, we estimate the impact of the “Big Waves” since 2011.

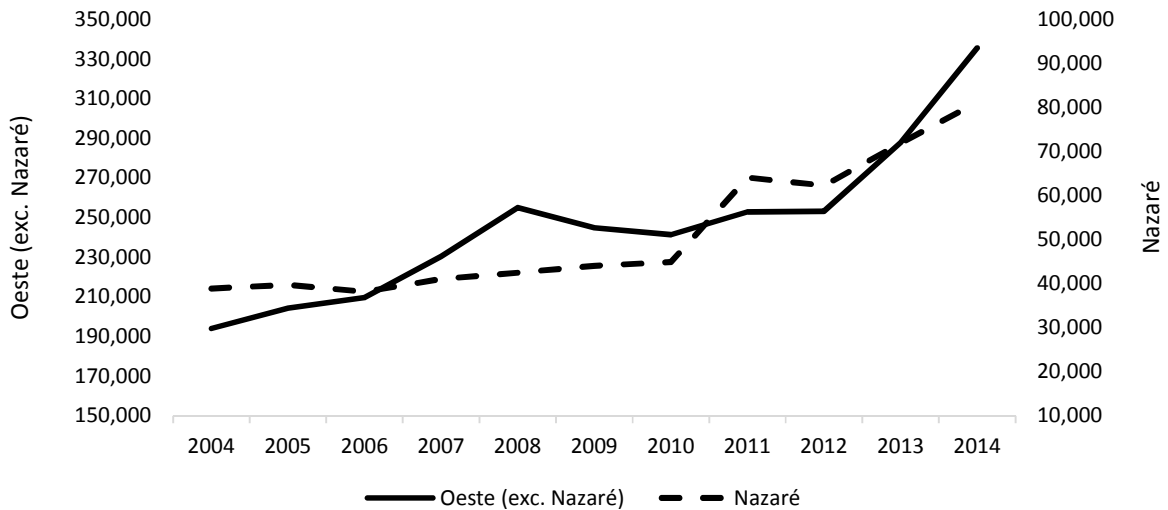
We consider two counterfactual scenarios. Our first counterfactual analysis uses as a comparison group all the coastal municipalities in the Oeste region, excluding Nazaré. This selection is based on three reasons. First, those municipalities have the same distinguishing attractive factors as in Nazaré, namely sun, sand, and surf, except for big waves. Figure 6 presents the evolution in the number of visitors over time. The solid line stands for the number of visitors in the Oeste coastal municipalities excluding Nazaré, while the dashed line stands for the total number of visitors in Nazaré. As can be seen, both lines move upward together and the Nazaré visitors contribute significantly to the total number of tourists visiting the region.

A second reason for using the Oeste coastal municipalities as a comparison group is that they are also located between the popular tourist route between Lisbon and Oporto, the two largest cities in Portugal, and the most important urban tourism areas in the country.¹⁰ The number of visitors in Lisbon and Oporto accounts for about 30% of the total visitors in Portugal. When tourists travel between Lisbon and Oporto, a distance of 300 km, using rented cars or tourist buses, it is possible that they visit Nazaré or any other Oeste region municipality and stay overnight.

Finally, a third reason for using the Oeste coastal municipalities as a comparison group is that they also shared in the recent boom in tourism in Portugal between 2010 and 2014. As shown in Figure 7, the trend of tourism in Portugal is very similar to that observed in the coastal municipalities of

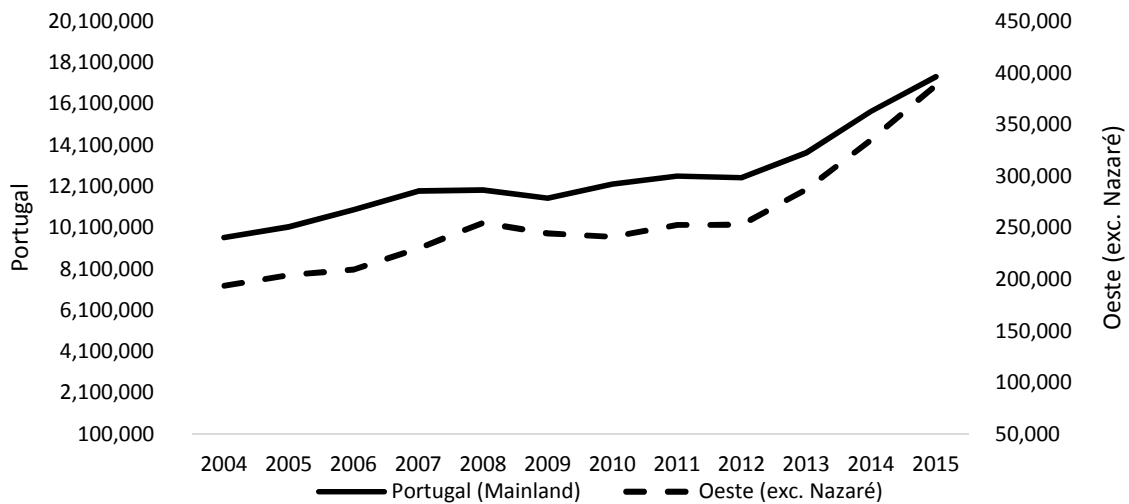
the Oeste region (including Nazaré). Thus, to disentangle the impact of the “Big Waves” in Nazaré from the effect that might be due to the recent tourism boom in Portugal, the constructed comparison group should also reflect that recent change in trend.

Figure 6: Total number of visitors in the Oeste region (excluding Nazaré) and in Nazaré



Source: INE (2015)

Figure 7: Number of visitors in Portugal and the Oeste region (excluding Nazaré)



Source: INE (2015)

In the first counterfactual analysis, we use the Oeste municipalities, excluding Nazaré, as the comparison or baseline group. The counterfactual number of tourists that would have visited Nazaré in case the media campaign had not taken place is estimated as the projected number of tourists in Nazaré given its past trend plus a correction of the change in trend that occurred after 2009 due to factors other than the big wave media campaign (mainly explained by the recent boom in tourism in Portugal). This change in trend is calculated from the observed change in trend in the number of tourists in the Oeste region. More specifically, we start by using data on tourist arrivals in Nazaré before the media campaign, that is, from 2004 to 2009, in order to obtain projections for the subsequent years. To make the projections we use the following equation:

$$\ln(\text{NumTourist}_t) = \beta_0 + \beta_1 \text{trend} + u_t \quad (1)$$

where $\ln(\text{NumTourist}_t)$ is the natural logarithm of the number of tourists in Nazaré in year t while trend stands for a linear trend, and u_t is an error term. Next, we apply the same procedure but using data for the Oeste coastal municipalities, excluding Nazaré, and obtain projections of the corresponding number of tourists for the same years. The above mentioned correction of the change in the trend is then calculated for each year from 2011 to 2014 as follows:¹¹

$$\Delta_t^{\text{Oeste}} = \ln(\text{NumTourist}_t^{\text{Observed Oeste}}) - \ln(\text{NumTourist}_t^{\text{Projected Oeste}}) \quad (2)$$

where $\ln(\text{NumTourist}_t^{\text{Observed Oeste}})$ and $\ln(\text{NumTourist}_t^{\text{Projected Oeste}})$ are the natural logarithms of the observed and projected numbers of tourists in the Oeste coastal municipalities excluding Nazaré in year t , respectively. Finally, the estimated impact of the media campaign on the number of tourist arrivals in Nazaré for the period 2011-2014, is calculated as the difference between the observed number of tourists in Nazaré and the projected values, including the correction for the change in trend, as follows:

$$Impact_t = NumTourist_t^{Observed Nazare} - (1 + \Delta_t^{Oeste}) \times NumTourist_t^{Projected Nazare} \quad (3)$$

where $NumTourist_t^{Observed Nazare}$ represents the observed number of tourists in Nazaré in year t , $NumTourist_t^{Projected Nazare}$ is the projected numbers of tourists in Nazaré in year t obtained from equation (1), and Δ_t^{Oeste} is the correction for the change in trend obtained from equation (2).

Our second counterfactual analysis extends the previous one by accounting for a problem common to any counterfactual analysis: the presence of potential spillover effects occurring when the comparison group is also affected by the intervention. In our case, it may be the case that the estimated Oeste coastal trend was also affected by the Nazaré big waves campaign, even though the Nazaré's visitors were excluded from the comparison group. For instance, those who visited Nazaré because of the big wave could also have visited the neighboring coastal municipalities in Oeste. That is to say, there may exist a positive spillover effect of the big waves' media campaign in Nazaré on the adjacent coastal municipalities in Oeste such that:

$$\Delta_t^{Oeste} = \Delta_t + Spillover_t^{Oeste} \quad (4)$$

where Δ_t is the Oeste coastal municipality change in trend that would occur without the big wave intervention and without any spillover effects, and $Spillover_t$ is the spillover effect caused on the Oeste coastal municipalities because of the Nazaré big wave campaign. To isolate this spillover effect, we first estimate the recent change in the growth rate of tourism in coastal municipalities that are located between Lisbon and Oporto but are not part of the Oeste region, as follows:

$$\Delta_t^{Coastal} = \ln(NumTourist_t^{Observed Coastal}) - \ln(NumTourist_t^{Projected Coastal}) \quad (5)$$

where $\ln(NumTourist_t^{Observed Coastal})$ and $\ln(NumTourist_t^{Projected Coastal})$ are the natural logarithms of the observed and projected numbers of tourists in coastal municipalities between Lisbon and Oporto excluding those from the Oeste region in year t , respectively.¹² Since these

municipalities are far from Nazaré, we may reasonably assume that in this case there is no spillover effect, that is, $Spillover_t^{Coastal} \approx 0$, implying that

$$\Delta_t^{Coastal} \approx \Delta_t \quad (6)$$

where $\Delta_t^{Coastal}$ and Δ_t stand as above. Finally, we calculate the estimated impact of the big wave media campaign as:

$$Impact_t = NumTourist_t^{Observed\ Nazare} - (1 + \Delta_t^{Coastal}) \times NumTourist_t^{Projected\ Nazare} \quad (7)$$

where $\Delta_t^{Coastal}$ is as in (5). This estimate properly accounts for any spillover effects that may have occurred.

4. Estimation Results

In this section we present and discuss the estimation results of the economic impact of the media campaign on the big waves on the local economy of Nazaré under the two scenarios described in section 3. We start by examining the impact on domestic visitors, followed by that on international visitors.

4.1 Domestic Visitors

The results for domestic visitors are presented in Figure 8, where the solid line indicates to the observed number of visitors in Nazaré and the dashed and dotted lines indicate to the estimated number of tourists in Nazaré under scenarios 1 and 2, respectively. The differences between the solid line (observed data) and each other line (dashed or dotted line) illustrate to the impact of the media campaign. We also computed the estimated number of visitors for each scenario in Table 1.

Figure 8: Estimation results for domestic visitors

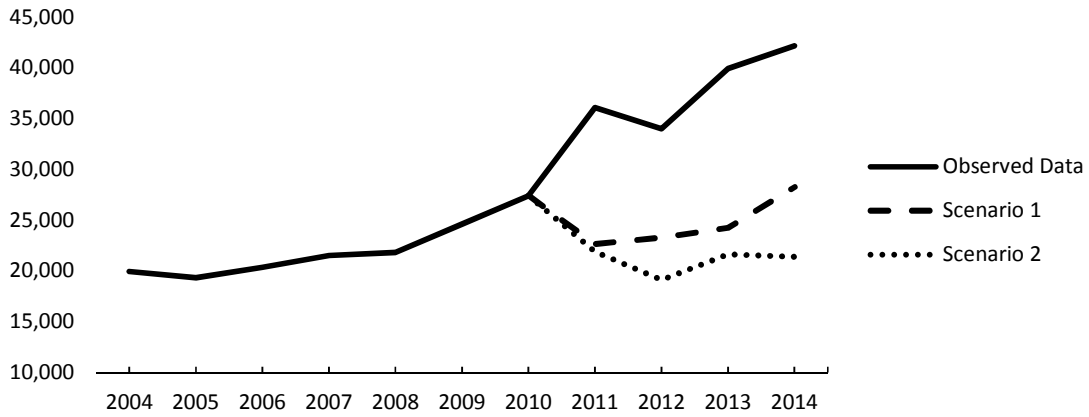


Table 1: Estimated number of domestic visitors

| | 2011 | 2012 | 2013 | 2014 | Total |
|--------------------------------------|--------|--------|--------|--------|---------|
| Scenario 1 | 13,434 | 10,682 | 15,671 | 13,903 | 53,690 |
| Scenario 2 | 14,194 | 14,869 | 18,279 | 20,770 | 68,112 |
| Observed Number of Domestic Visitors | 30,080 | 33,993 | 39,922 | 42,161 | 152,156 |

Note that the projection of the number of domestic visitors to Nazaré in the absence of the media campaign in scenario 1 is based on past information (2004-2009) and accounts for the coastal municipality trend. The projection in scenario 2 also takes into account the coastal municipality trend but excludes any spillover effect, as discussed in Section 3.

We observe a significant difference in the estimated number of domestic visitors to Nazaré depending on the different scenarios. The difference between the solid and dashed lines (scenario 1) corresponds to 53,690 domestic visitors for 2011-2014, while the difference between the solid and dotted lines (scenario 2) corresponds to 68,112 domestic visitors, respectively.

The greatest impact on the number of domestic visitors attracted by the “Big Waves” is obtained under the second scenario, indicating that a considerable drop in the number of domestic visitors

to Nazaré would have occurred without the media campaign, when compared to the number of domestic tourists that would have been attracted in the first scenario.

We also test for the difference in the projected number of visitors in the absence of the media campaign by conducting statistical tests for differences in means. The null hypothesis is that the means of the projected number of domestic visitors between scenarios 1 and 2 are not different from each other. The null hypothesis is rejected at a 10% significance level (p-value=0.06), suggesting the presence of a spillover effect.

4.2 International Visitors

The results for international visitors are reported in Figure 9. The interpretation is similar to that of Figure 8. The solid line indicates the observed number of visitors in Nazaré and the dashed and dotted lines correspond to the constructed comparison groups under scenarios 1 and 2, respectively. Interestingly enough, the data on visitors (solid line) suggest that the “Big Waves” in Nazaré reversed in the following years the observed negative trend between 2008 and 2010. The estimated numbers of visitors for each scenario are presented in Table 2.

Figure 9: Estimation results for international visitors

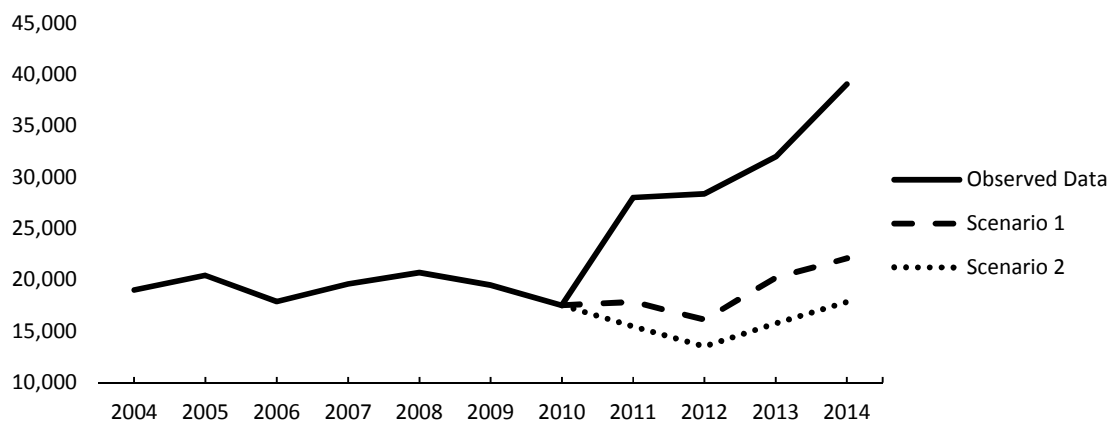


Table 2: Estimation results for the number of international visitors

| | 2011 | 2012 | 2013 | 2014 | Total |
|---|--------|--------|--------|--------|---------|
| Scenario 1 | 10,148 | 12,235 | 11,774 | 16,952 | 51,109 |
| Scenario 2 | 12,532 | 14,850 | 16,228 | 21,222 | 64,832 |
| Observed Number of International Visitors | 28,006 | 27,257 | 31,434 | 35,500 | 122,197 |

The results from counterfactual analysis in Table 2 suggest that the “Big Waves” attracted an additional 51,109 and 64,832 international visitors between 2011 and 2014, depending on the scenario. As with domestic visitors, we also test for the difference in the projected number of visitors in the absence of the media campaign by conducting tests in means. The *p-value* for the difference between scenarios 1 and 2 indicates that they are statistically different. The results suggest that the presence of spillover effects in the case of international visitors is even more statistically significant since the *p-value* is smaller ($=0.00$). In summary, the statistical tests comparing the observed data to the projected data for both domestic and international visitors indicate that the media campaign has significantly contributed to the recognition of the region (*p-value* $=0.00$ for all scenarios).

4.3 Economic Impact of the “Big Waves”

In order to compute the impact of the media campaign in Euros, we obtained an estimate of the average individual expenditures per trip for international and domestic tourists in Nazaré from 2010 to 2014 by conducting an online survey to managers of hotel establishments in Nazaré. The data obtained from this survey from five hotels (out of eleven in 2010) are in Table 3. The average individual expenditures per trip include all the payments at the hotel, including even payments for services to other companies such as car rentals, ticket sales for different activities, etc. These data

do not include expenditures outside the hotel establishments such as in souvenirs' shops or restaurants, and can therefore be considered as lower bound estimates.

Table 3: Average expenditure per visitor per trip in Nazaré (Euros)

| Year | International tourists | Domestic tourists |
|------|------------------------|-------------------|
| 2010 | 68 | 51 |
| 2011 | 68 | 58 |
| 2012 | 74 | 68 |
| 2013 | 92 | 72 |
| 2014 | 92 | 72 |

The results related to the impact of the media campaign are shown in Table 4. The overall estimated economic impact of the “Big Waves” is about 7.91 million Euros (scenario 1), and 10.08 million Euros (scenario 2), in 2012 prices, for the period 2011-2014.¹³ As shown in this table, the largest estimates obtained are in scenario 2, in which the recent coastal municipality change in trend in tourism and the spillover effect of Nazaré are taken into account.

Table 4: Estimated economic impact in Euros

| | 2011 | 2012 | 2013 | 2014 | Total |
|------------|-----------|-----------|-----------|-----------|------------|
| Scenario 1 | 1,469,236 | 1,631,766 | 2,211,520 | 2,560,600 | 7,907,921 |
| Scenario 2 | 1,675,428 | 2,109,992 | 2,809,064 | 3,447,864 | 10,081,267 |

To give a sense of scale, the total impact estimates from Table 4 are compared to the total revenues of local hotel establishments. The results are presented in Table 5. The estimated impact of the “Big Waves” ranges between 32.2% and 41% of the total revenue of hotel establishments for 2011-2014, depending on the scenario.

Table 5: Contribution of the “Big Waves” to the local economy when compared to total revenues of hotel establishments in %

| | 2011 | 2012 | 2013 | 2014 | Average |
|-----------------------|------|------|------|------|---------|
| % change (Scenario 1) | 25.0 | 28.1 | 36.7 | 38.1 | 32.2 |
| % change (Scenario 2) | 28.5 | 36.3 | 46.6 | 51.4 | 41.0 |

Also note that the impact estimates obtained should be considered as lower bound estimates. First, the data on tourist arrivals do not account for those who informally rent apartments, rooms, bungalows, etc. Second, the average expenditures used for the calculation of those estimates do not include expenditures outside hotel establishments. Third, Nazaré may still continue to benefit from this media campaign. Moreover, as mentioned above, the tourists attracted by the media campaign may also visit nearby municipalities, contributing to their economies. All these issues can be addressed in future research.

4.4 Public Expenditures on the “Big Waves”

Besides estimating the revenues that can be associated with the media campaign, we also collected information on its costs (see Table A1 in the Appendix). For that purpose, we conducted face-to-face interviews to stakeholders responsible for promoting the “Big Waves” campaign in order to obtain information about the financial support provided by public and private institutions between 2010 and 2013 that sponsored the campaign. Since the private companies that invested have most likely also benefited from that campaign, by advertising and promoting their brands and products to Nazaré’s visitors, when accounting for the costs we consider only the expenditures incurred by the local municipality.¹⁴

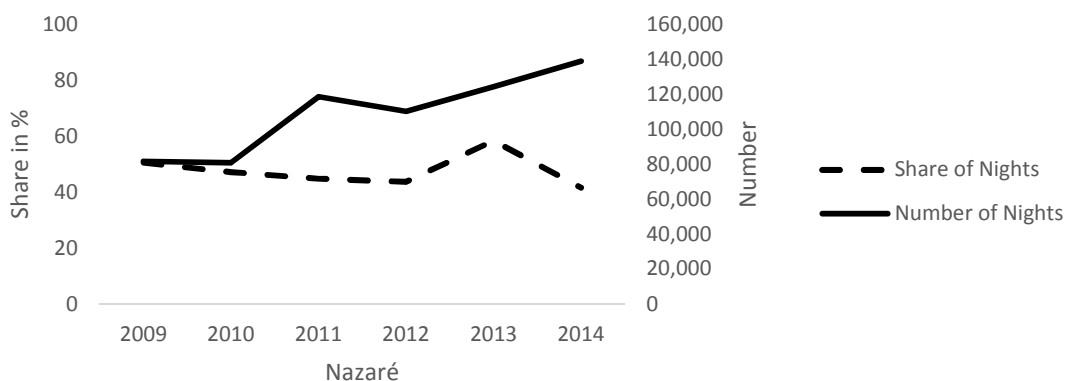
Overall, the total reported expenditures related to “Big Waves” were 283,847 Euros during 2010-2013 of which 26,948 Euros were public expenditures, that is, investment of the local municipality.¹⁵ Even though public expenditures are less than the private ones, the involvement of the public sector in organizing events has the potential to attract visitors and businesses, as pointed out by Felsenstein and Fleischer (2003).

5. Final Remarks

In the previous sections we provided evidence of the successful experience led by the municipality of Nazaré in attracting a rising number of visitors in recent years, namely, how an old fishing community can successfully promote its unique natural attributes by investing resources in making them visible to the world. Overall, the costs incurred with “Big Waves” were relatively small when compared to the estimated revenues obtained. The successful experience of Nazaré can be an example to other coastal municipalities that face similar challenges and have unique or featured natural or cultural attributes that may attract visitors at different times of the year. Not only can seasonality be reduced by increasing the number of visitors in low season, but adjacent regions can also benefit from positive spillover effects.

Seasonality is an important concern of EU policy makers (see Eurostat, 2014), and Portugal is no exception. As reported in Eurostat (2014), the number of nights spent in 2014 during the peak month (August) was 4.9 times greater than the number of nights spent in the off-peak month (January). Among the 28 European countries (from highest to lowest), Portugal is ranked in the 8th position, after Denmark, Italy, and France. In the case of Nazaré, visitors are attracted by beaches in the region and all related recreational activities (generic interests) in the summer, as in other coastal regions in the country. However, by attracting visitors with specific interests, the worldwide recognition of the big waves contributed positively to reduce off-peak unused capacity of the hotels in Nazaré, as the waves occur only in the autumn-winter period. As shown in Figure 10, the annual number of nights (solid line) in Nazaré increases, while the share of nights spent (dashed line) in July-September decreases. This suggests that tourists are visiting Nazaré for the whole year and not only in high season. Therefore, we may conclude that capitalizing on specific and/or unique local features may help to diversify the touristic offer, increasing the number of visitors throughout the year.

Figure 10: Share and number of nights in Nazaré



Three remarks are in order. First, even though that the existence of attributes is crucial, there are other factors that may influence the capacity of the municipalities to exploit their potential, such as the availability and quality of the infrastructure network and the institutional framework, namely related to the public/private sector interaction. Second, note that the short distances between the municipalities in the case of Portugal make policy coordination even more important in order to avoid wasting resources by competing against each other. Though the desirable degree of policy coordination across the different municipalities to increase efficiency when promoting adjacent destinations can be high, it also may contribute to weaken accountability of municipalities toward the citizens under their jurisdiction. While these are important political issues they are beyond the scope of this paper and are left for future research. Finally, in order to increase the chances of success, it is crucial to understand how visitors value different local attributes, that is, their preferences. A better understanding of tourists' preferences in their whole diversity would definitely contribute to increase efficiency when promoting those destinations.

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References

Asian Development Bank. 2011. A Review of Recent Development in Impact Evaluation. Available at: <https://www.adb.org/sites/default/files/publication/28622/developments-impact-evaluation.pdf>

COM. 352 final. 2010. Communication from the Commission to the European Parliament, The Council, The European Economic and Social Committee and the Committee of the regions. Europe, the World’s No 1 Tourist Destination - A New Political Framework for tourism in Europe. <http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0352:FIN:en:PDF>

Curzon, H. F., and A. Kontoleon. 2016. “From Ignorance to Evidence? The use of Programme Evaluation in Conservation: Evidence from a Delphi Survey of Conservation Experts.” *Journal of Environmental Management* 180: 466-475.

Drimil, S., R. Ballantyne, and J. Packer. 2017. “How Long Does an Economic Impact Last? Tracking the Impact of a New Giant Panda Attraction at an Australian Zoo.” *Journal of Travel Research*, forthcoming.

Duffy, R. 2014. “Interactive Elephants: Nature, Tourism and Neoliberalism.” *Annals of Tourism Research* 44: 88-101.

Eurostat. 2016. “Seasonality in the Tourist Accommodation Sector”. Available at: http://ec.europa.eu/eurostat/statisticsexplained/index.php/Seasonality_in_the_tourist_accommodation_sector#Further_Eurostat_information (accessed June 15, 2016).

Felsenstein, D. and A. Fleischer. 2003. “Local Festivals and Tourism Promotion: The Role of Public Assistance and Visitor Expenditure.” *Journal of Travel Research* 41 (4): 385-392.

INE, 2015. Instituto Nacional de Estatística. Available at www.ine.pt (accessed March 15, 2016).

Jeong, J. Y., J. L. Crompton, and R. M. Dudensing. 2015. "The Potential Influence of Researchers' 'Hidden' Procedure Decisions on Estimates of Visitor Spending and Economic Impact." *Journal of Travel Research* 55 (7): 1-15.

Khandker, S. R., G. B. Koolwal, and H. A. Samad. 2009. *Handbook on Impact Evaluation: Quantitative Methods and Practices*. World Bank Publications, 1st Edition.

Lacher, R.G., C. Oh, L.W. Jodice, and J.W. Norman. 2013. "The Role of Heritage and Cultural Elements in Coastal Tourism Preferences: A Choice Modeling-Based Analysis." *Journal of Travel Research* 52 (4): 534-546.

OECD. 2016. *OECD Tourism Trends and Policies 2016*. Available at: http://www.oecd-ilibrary.org/industry-and-services/oecd-tourism-trends-and-policies-2016_tour-2016-en (accessed September 15, 2016).

PENT, 2012. *Plano Estratégico Nacional do Turismo Horizonte 2013-2015*. <http://www.turismodeportugal.pt/Portugu%C3%AAs/turismodeportugal/publicacoes/Documents/PENT%202012.pdf> (accessed June 15, 2016).

Quaresma, L.S., J. Vitorino, A. Oliveira, J. da Silva. 2007. "Evidence of Sediment Resuspension by Nonlinear Internal Waves on the Western Portuguese Mid-shelf." *Marine Geology* 246 (2-4): 123-143.

Quaresma, L.S. and A. Pichon. 2013. "Modelling the Barotropic Tide along the West-Iberian Margin." *Journal of Marine Systems* 109-110: S3-S25.

Relvas, P., E. D. Barton, J. Dubert, P. B. Oliveira, Á. Peliz, J. C. B. da Silva, and A. M. P. Santos. 2007. "Physical Oceanography of the Western Iberia Ecosystem: Latest Views and Challenges." *Progress in Oceanography* 74 (2-3): 149-173.

Saayman, M. and A. Saayman. 2016. "Regional Development and National Parks in South Africa: Lessons Learned." *Tourism Economics* 16 (4): 1037-1064.

Smeral, E. and A. Weber. 2000. "Forecasting International Tourism Trends to 2010." *Annals of Tourism Research* 27 (4): 982-1006.

Stoeckl, N., A. Birtles, M. Farr, A. Mangott, M. Curnock, and P. Valentine. 2010. "Live-aboard dive boats in the Great Barrier Reef: Regional Economic Impact and the Relative Values of Their Target Marine Species." *Tourism Economics* 16 (4): 995–1018.

Turismo-2020. 2013. Plano de Acção Regional do Centro (Regional Plan for the Central Region), http://turismo2020.searadev.com/fotos/editor2/documentos/plano_acao_reg_centro.pdf (accessed June 15, 2016).

Turismo de Portugal (Portuguese Tourism Department). 2015. Turismo-2020: Cinco princípios para uma ambição: Tornar Portugal o destino turístico mais ágil e dinâmico da Europa. <http://www.turismodeportugal.pt/PORTUGU%C3%8AS/TURISMODEPORTUGAL/DESTAQUE/Documents/turismo-2020-cinco-principios-para-uma-ambicao.pdf> (accessed June 15, 2016).

Turismo de Portugal (Portuguese Tourism Department). (2014). Algarve Tourism Strategic Marketing Plan for 2015 – 2018. http://poalgarve21.ccdr-alg.pt/site/sites/poalgarve21.ccdr-alg.pt/files/2014-2020/planomarkturismoalg2015_2018.pdf (accessed June 15, 2016).

Vitorino, J., A. Oliveira, J. M. Jouanneau, and T. Drago. 2002. "Winter Dynamics on the Northern Portuguese Shelf. Part 1: Physical Processes." *Progress in Oceanography* 52 (2–4): 129–153.

Appendix:

Table A1: Public and Private Expenditures on the “Big Waves” 2010-2013 (in Euros).

| Period | Entity | Amount invested (EUR) | Investment in particular sector/field (cost) | |
|---------------------------|---------------------------|--|--|--|
| 2010 | Public | Turismo do Oeste – Subsidy | 5 000 | Marketing and Advertising |
| | | Instituto Hidrográfico da Marinha de Guerra (IHMG) | n/a | Information: Waves’ forecast |
| | | Nazaré Qualifica / Nazaré’s Municipality | 13 500 | Travel Film making Jet ski |
| | Private | Lightning Bolt – sponsor | 1 500 | Fuel |
| | | Hotel Maré | 7 700 | Accommodation |
| | | Hotel Miramar | | |
| | Public Total 2010 | | 18 500 | |
| | Private Total 2010 | | 9 200 | |
| | Total 2010 | | 27 700 | |
| | 2011 | Public | Turismo do Oeste – Subsidy | 10 000 |
| IHMG | | | n/a | Information: Waves’ forecast |
| Private | | ZON and Mercedes-Benz | 42 000 | Fuel Public relations Jet ski maintenance |
| | | Red Bull | 10 000 | Wavejet Trials competition |
| | | Wavejet | 8 000 | Prize Money of Wavejet Trials |
| | | ZON | n/a | ZON's campaign: Promotion of Nazaré's big waves and Garrett McNamara's work in North Beach |
| | | Maré Hotel | 7 700 | Accommodation |
| | | Miramar Hotel | | |
| Public Total 2011 | | 10 000 | | |
| Private Total 2011 | | 67 700 | | |
| Total 2011 | | 77 700 | | |
| 2012 | Public | IHMG | n/a | Information: Waves’ forecast |
| | Private | ZON and Mercedes-Benz | 90 000 | Reopening of the Lighthouse, a public museum of the big waves ZON: Production of three documentaries Fuel Public relations Jet ski maintenance |
| | | ZON | n/a | ZON's campaign: Promotion of Nazaré's big waves and Garrett McNamara's work in North Beach |
| | | | | |

| | | | | | |
|-----------------------------|---------|-----------------------|----------------|--|---------------------|
| | | Maré Hotel | 4 700 | Accommodation | |
| | | Miramar Hotel | | | |
| | | Physioclem | n/a | SPA treatments | |
| Public Total 2012 | | | n/a | | |
| Private Total 2012 | | | 94 700 | | |
| Total 2012 | | | 94 700 | | |
| 2013 | Public | IHMG | n/a | Information: Waves' forecast | |
| | Private | ZON and Mercedes-Benz | 110 000 | ZON: Production of three documentaries | |
| | | | | Fuel | |
| | | | | | Public relations |
| | | | | | Jet ski maintenance |
| | | ZON | n/a | ZON's campaign: Promotion of Nazaré's big waves and Garrett McNamara's work in North Beach | |
| | | Maré Hotel | 4 700 | Accommodation | |
| | | Miramar Hotel | | | |
| | | Barra Thalasso | n/a | SPA treatments | |
| | | Physioclem | | | |
| Public total (2013) | | | n/a | | |
| Private Total (2013) | | | 114 700 | | |
| Total (2013) | | | 114 700 | | |

Note: The data were obtained from the municipality of Nazaré. n/a stands for non-available data. Also, note that the ZON company is now renamed as NOS.

¹ See also Felsenstein and Fleischer (2003).

² According to the Asian Development Bank (2011), the baseline scenario is required to conduct a rigorous impact evaluation. See also the World Bank guide on impact evaluation by Khandker et al. (2009).

³ Hereinafter “Big Waves” refers to the combination of the big waves in Nazaré and the media campaign.

⁴ The recent tourism boom is mainly related to the number of international tourists which has persistently increased at approximately 8% per year (OECD report, 2016).

⁵ For a detailed discussion see COM (2010) pg. 9.

⁶ Currently this company is renamed NOS, one of the Portuguese media companies.

⁷ Similar big waves can be found in Australia, France (e.g. Belharra), Ireland (e.g. Mullaghmore Head), South Africa, (e.g. Dungeons), Peru (e.g. Cabo Blanco), and in California (e.g. Maverick's and Cortes Bank), USA.

⁸ See <http://reports.weforum.org/travel-and-tourism-competitiveness-report-2015/index-results-the-travel-tourism-competitiveness-index-ranking-2015>.

⁹ These data do not include information on tourists that use informal rental of holiday apartments and campsites.

¹⁰ Nazaré is located half way between the two cities.

¹¹ Since the media campaign started in autumn 2010, we do not estimate the counterfactual number of tourists for that year.

¹² Coastal municipalities include Aveiro, Cantanhede, Espinho, Figueira da Foz, Ílhavo, Leiria, Marinha Grande, Mafra, Mira, Murtosa, Ovar, Pombal, Vagos, Vila Nova de Gaia, and Vila Franca de Xira.

¹³ We used the Consumer Price Index to compute the economic impact of each year in 2012 prices.

¹⁴ Though Nazaré's economy might have also taken advantage indirectly from those private investments, that information is not available.

¹⁵ We used the Consumer Price Index to compute the costs incurred with the “Big Waves” during 2010-2013 in 2012 prices.