



Vacation home rentals and carrying capacity

Economic effects of vacation home rentals and policy options

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Economic effects of vacation home rentals and international policy options

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Summary

Socioeconomic effects of vacation home rentals

From international academic literature, positive, negative and mixed socioeconomic effects from the vacation home rentals (VHRs) can be derived. Some of these effects result from increased in tourism in general, while other effects result from the specific characteristics of VHRs compared to traditional tourist accommodation.

Table 1 Positive, negative and mixed socioeconomic effects of VHRs.

Increased tourism		
Positive	Negative	Mixed
<i>Additional economic activity.</i> The value of VHR bookings and expenditures at the destination generate economic activity.	<i>Overtourism.</i> Tourism may exceed the carrying capacity of the destination.	<i>Competition with hotels.</i> The evidence for competition with hotels is mixed. Moreover, fair competition may drive innovation.
Different type of supply		
Positive	Negative	Mixed
<i>Income for owners.</i> Homeowners can generate additional income to provide for living expenses.	<i>Housing shortage.</i> Unlike traditional accommodation, VHRs withdraw homes from the residential market.	<i>Development of residential areas.</i> VHRs allow tourism to spread to residential areas. This provides economic opportunities, but gentrification can occur as well.
<i>Flexible supply.</i> Due to their flexible nature, VHRs can accommodate additional supply during the high season.	<i>Low compliance.</i> Tax and quality regulations are often lenient, or incompletely enforced. This affects tourist safety and government revenue and creates unfair competition.	<i>Attractive to tourists.</i> Prices are low, so VHRs enable long stays and more frequent travels. VHRs can also allow for interaction with the local host and an authentic experience.

Source: Amsterdam Bureau for Economics (2023).

The socioeconomic effects in the Aruban context

The extent to which positive and negative effects occur depends on several circumstances in the economy. The table below presents how characteristics of the Aruban economy and VHR sector affect the degree to which the socioeconomic effects of VHRs occur in Aruba. It turns out that VHRs generate significant economic activity and opportunities, but there are strong indications that the adverse socioeconomic effects of VHRs occur in an enhanced degree in Aruba. The housing market in particular is affected adversely by the VHR supply. Moreover, the sector is commercialized and suppliers are usually not small homeowners renting out excess space in less developed neighbourhoods, but rather professional service providers owning and exploiting multiple homes.

Table 2 Characteristics of the Aruban economy and VHR sector and the resulting consequences for the effects of VHRs.

Fact	Implications for the effects
<i>Characteristics that underline the positive effects</i>	
The VHR sector supplies more rooms than hotels and timesharing apartments. The revenue from VHR bookings amounted to \$153 million in 2022.	⇒ The VHR sector generates significant economic activity .
Tourism accounts for 82 percent of Aruba's exports. Most Arubans agree that tourism has a positive impact on Aruba.	⇒ The tourism industry is important and appreciated by the population.
Hotel rates can be almost twice as high during the high season as in the low season.	⇒ The strong seasonal patterns imply that the flexible VHR supply can accommodate additional tourists during the high season .
<i>Characteristics that underline the negative effects</i>	
There are 4,203 VHRs out of 38,830 housing units , equalling almost 11 percent .	⇒ The high ratio of VHRs compared to housing units implies that the VHR market strongly contributes to the housing shortage .
Most rentals are entire homes .	⇒ Entire homes are withdrawn from the housing market . ⇒ The sector has become commercial : most listings belong to owners with at least a second home, rather than small homeowners . ⇒ The owner usually does not live on site . This threatens to cause more nuisance .
The cost of living and affordability of housing are among the top 3 tourism concerns among Arubans.	⇒ There is a base of support for measures that mitigate the effect of VHRs on the housing market.
There exist several managers with dozens of listings . At least 11 percent of properties belong to non-residents .	⇒ The sector has become commercial : there are sizeable players active in the market, a significant portion of which are foreign .
Most listings are located in Noord .	⇒ VHRs do not lead to an equal spreading of tourism.
Roughly half of the rentals is booked for more than the legal maximum of 90 days.	⇒ There is reason to believe that compliance is lacking .

Source: Amsterdam Bureau for Economics (2023).

Policy and regulations

Internationally, multiple cities and regions have adopted policies to regulate the VHR market. Regulatory policy is highly diverse in its approach and depends on the policy goals that jurisdictions have with regards to the VHR market. Literature identifies three main policy goals: easing the pressure of tourism by limiting the number of VHRs; protecting affordable housing by limiting the commercialization of the sector; and preserving residential living by reducing nuisance from guests. Figure 1 provides an overview of the policy instruments used internationally to achieve the policy goals and the positive and negative effects of using these instruments.

Figure 1 The policy instruments cities and regions use in order to regulate the VHR market depend on their policy goals.

	Ease the pressure of tourism <i>Limit supply of VHRs</i>	Protect affordable housing <i>Limit commercialization of the sector</i>	Preserve residential living <i>Reduce nuisance from guests</i>
<i>Policy instruments</i>	<ul style="list-style-type: none"> Complete prohibition Ban VHRs for specific locations Regulate number of VHRs Prohibiting non-residents purchasing residential homes 	<ul style="list-style-type: none"> Regulate number of VHRs Regulate number of days/nights Regulate accommodation type Requiring rented rooms to be in occupied homes Prohibiting non-residents purchasing residential homes 	<ul style="list-style-type: none"> Restricting number of guests Requiring rented rooms to be in occupied homes House rules
<i>Severity of measures</i>	++	+	-
<i>Positive effects</i>	<ul style="list-style-type: none"> Limits number of VHRs effectively. 	<ul style="list-style-type: none"> Limits number of VHRs without restricting 'regular' home owners to earn additional income. 	<ul style="list-style-type: none"> Reducing nuisance from guests without taking severe measures that are disruptive for the VHR market.
<i>Negative effects</i>	<ul style="list-style-type: none"> Combating positive effects from VHRs (economic activity, flexible supply). Risk of an underground market. 	<ul style="list-style-type: none"> Risk of causing a (drastic) decline in the supply of VHRs. 	<ul style="list-style-type: none"> Policies are difficult to enforce.

Source: Amsterdam Bureau for Economics (2023).

Policies to protect affordable housing are most suitable for Aruba

In Aruba, negative effects that stem from the growth of the VHR sector are mostly related to surging housing prices and commercialization of the sector. Policy instruments aimed at mitigating these negative effects include regulating the number of VHRs, restricting the number of days/nights, regulating accommodation type, requiring rented rooms to be in owner occupied houses and prohibiting non-residents purchasing residential homes. These policies mostly affect commercial investors in the VHR market while facilitating residential homeowners to earn additional income. Since the VHR sector in Aruba is commercialized, policy instruments that affect commercial investors could have a significant impact on the VHR sector and should therefore be designed carefully.

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1. Introduction

Vacation home rentals have been around since 1995, with Airbnb (originally an example of the sharing economy) becoming the largest provider¹

It has been possible to book vacation rentals in homes online since 1995, when Vacation Rentals By Owners was founded (Vrbo). The industry has grown rapidly since then. In 2008, two students in San Francisco founded Airbnb. As that name – short for ‘Airbed and Breakfast’ – suggests, Airbnb was originally intended to rent out spare space in homes. As such, it was an example of the sharing economy. Airbnb has professionalized and included other types of offer than spare rooms. It is now the largest platform of its kind, with millions of listings around the world.*

Several terms are used to refer to the industry. This report writes of vacation home rentals (VHRs), but other names include short-term rentals (STRs) and peer-to-peer (P2P) accommodation.

The Aruban government needs a clear image of the pros and cons of VHRs in order to adequately implement policy

The VHR sector has grown all over the world and Aruba is no exception. This growth has raised the question of the pros and cons in Aruba. A clear picture of these pros and cons can ensure that the government can design and implement policy that limits the disadvantages as much as possible while preserving the advantages.

The report discusses the international academic literature (chapter 2), the Aruban context (chapter 3) and international policy practices (chapter 4)

This report uses the international academic literature to map the socioeconomic effects of VHRs in chapter 2. The effects mostly apply to an urban context. The extent to which the advantages and disadvantages occur depends on a number of destination-related factors. Chapter 2 describes these as well.

Chapter 3 translates the socioeconomic effects derived from international literature to the Aruban context. It first describes the supply of VHRs in Aruba. It then translates the socioeconomic effects to the Aruban context based on the destination-related factors from chapter 2.

Chapter 4 provides an overview of policy instruments that have been implemented internationally in order to regulate the VHR market. Positive and negative effects of policy instruments are described, and a connection is made between the policy goals that cities are trying to achieve and the instruments they have adopted in order to achieve those goals.

References

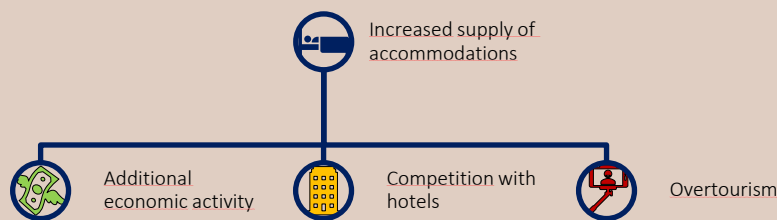
¹ The next paragraph is based mainly on Adamiak (2020). See Heo et al. (2019) for the founders and the full name of Airbnb, and Furukawa & Onuki (2022) about the point regarding the sharing economy.

* The growth of the platform economy has subsequently led to the emergence of platform cooperatives with a focus on social and sustainable impact (Runhaar, 2021). Fairbnb.coop is an example of a cooperative in the VHR market.

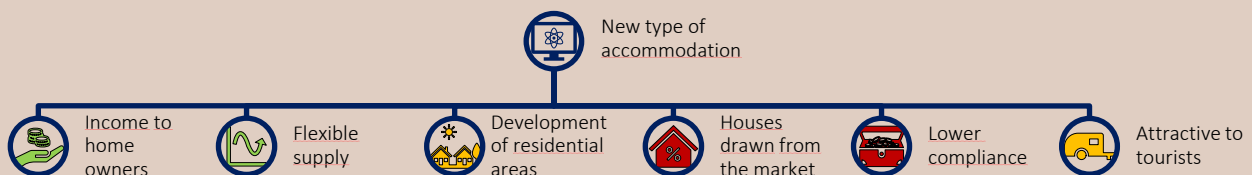
2. Positive and negative effects of vacation home rentals (VHRs)

Summary

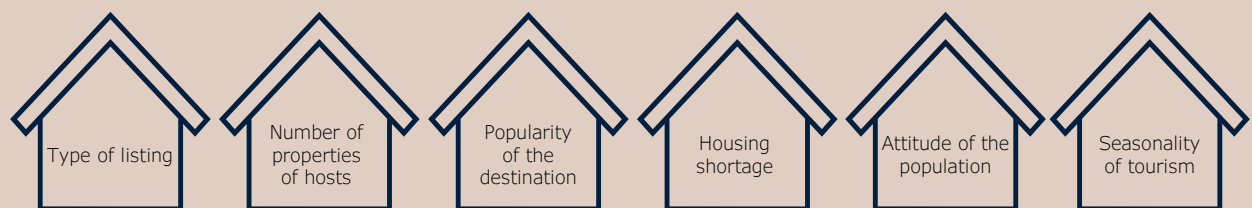
VHRs affect the accommodation market in two ways. In general, they increase the supply of accommodation at a destination. This increased supply has positive and negative effects. The graph below summarizes these effects. Positive effects are in green, adverse effects in red, and effects that have mixed consequences for a destination are in yellow.



In addition, VHRs make a type of supply widely accessible that is different in nature from the traditional supply. The changed characteristics of the supply also have several positive and negative effects.



Several factors determine to what extent to these costs and benefits occur:



Increased supply of accommodations

VHRs are an addition to the existing traditional supply. As a result, the number of beds available to tourists increases. This has various socioeconomic effects: there is increased economic activity and competition in the lodging sector becomes more intense. On the other hand, the risk of overtourism increases.

- **Economic activity²:** VHRs provide additional accommodation on top of traditional demand. The supply of VHRs may increase the demand for accommodation.* For example, one study estimates that only half of Airbnb bookings would otherwise have been made at a hotel. Tourists staying in VHRs pay for accommodation and spend money at the destination. This way they generate additional tourism income and, as a result, tax revenues. For example, there is evidence that Airbnb presence increases income in the wider tourism industry, such as in the catering and arts industries.[†]

* This mechanism is called *induced demand*.

† This phenomenon is called *joint demand*.

Positive and negative effects of vacation home rentals (VHRs)

- **Competition³**: With the presence of VHRs, tourists have more choice of where to stay. This creates competition between (budget) hotels and VHRs, which means that prices will fall and hotel revenues may fall too. This has consequences for local tax revenues. Two comments should be made here. First, (fair) competition is not necessarily bad for the economy of the destination (the question of whether competition is fair is discussed below). Second, there is no scientific consensus on whether VHRs lower the performance of hotels. Some studies find a negative effect of VHRs on hotel performance, whereas others do not. One study even finds that certain types of Airbnb listings are positively associated with employment in hotels. This result may be interpreted as a positive feedback loop, where the presence of VHRs makes the destination more attractive for hotel guests.
- **Overtourism⁴**: The additional inflow of tourists has economic benefits, but it may lift the presence of tourists above the carrying capacity of the destination. In this case, the destination experiences overtourism. Overtourism is characterized by noise, waste, pollution, environmental damage, and the disruption of the existing social structures, among others.

Different type of accommodation

Not only does the supply of tourist accommodation generally increase as a result of VHRs, but the supply is also different from, for example, traditional hotels. There are differences in their flexibility, geographic locations, prices, scales and types of tenants. These differences have positive and negative effects.

- **Income to homeowners⁵**: A commonly cited positive effect of VHRs is the possibility for property owners to generate (additional) income. Platforms such as Airbnb allow property owners to enter the market and rent out (a part of) their house to tourists. This helps them provide for living expenses. The extent to which this advantage occurs depends on some factors that are discussed at the end of this section.
- **Flexible supply⁶**: The supply of VHRs is more flexible than that of traditional hotel rooms. Fluctuating VHR supply can help absorb the high demand during the peak season, and then disappear in the low season. In addition, the destination can accommodate additional tourists and thus generate additional income. This is in particular an advantage if the destination has not yet reached its tourism carrying capacity.
- **Development of residential areas⁷**: The hotel industry tends to be centred in tourist areas, whereas VHRs are in general more spread out across neighbourhoods. This leads to a more even distribution of tourism activities, which could lead to the generation of tourism related jobs and the revitalization of neighbourhoods previously left aside by tourists.
The supply of accommodation in residential areas has negative effects too. Part of the explanation for the spread to residential areas is that Airbnb allows tourists to come to neighbourhoods that are prohibited for hotels by policy. These policies have usually been designed for a reason. The downside of tourism in residential areas is that it can lead to gentrification or, in this context, touristification. Gentrification in this context means that rents and house prices rise as vacation rentals and other commercial activities become more present in the neighbourhood. As a result, the original residents move out of the neighbourhood and do not benefit from the increased tourist activities.
- **Houses drawn from the market⁸**: Tourism in general raises housing costs, but VHRs in particular have a direct effect on the housing market. The supply of accommodation for tourists in residential areas implies that homes are withdrawn from the housing market. As housing demand is relatively inelastic, a small shift in housing supply can cause a major increase in housing prices. Research in the San Juan Metropolitan Area in Puerto Rico shows that a 10 percentage points higher presence of VHRs relative to the total housing stock is associated with 7 percent higher median rent and 23 percent higher median house prices in the next year. So, if the number of VHRs increases from 30 to 40 percent of the housing stock, the median rent increases by 7 percent and the median house price by 23 percent.
- **Lower compliance⁹**: Some destinations have little or no requirements for VHRs when it comes to taxes, health and safety measures, and insurance. Even if such requirements exist, enforcement is challenging. This has consequences for the safety of tourists and on the destination's tax revenues. Moreover, competition between traditional hotels and VHRs is unfair if the regulations for VHRs are less stringent or if they are not enforced.
- **Attractive to tourists¹⁰**: The vacations in VHRs are different from those in traditional hotels. First, VHRs are appealing to tourists as prices are typically lower, especially if the hotel rates in a destination are relatively high. Lower prices can lead to longer stays. Tourists stay longer in nonhotel accommodations in general than in hotels and many respondents to a survey conducted in 2014 agreed that VHRs allowed them to travel more frequently and to stay longer. Although it is tempting to conclude

Positive and negative effects of vacation home rentals (VHRs)

that lower prices attract low-spending tourists with lower incomes, the sharing economy in general actually appeals to people with relatively high incomes. Second, tourists have the opportunity to interact with the local host and have a more authentic experience, especially when the accommodation is a room in the host's home. The social interactions and authenticity increase activity participation: 53 percent of the 2014 survey claimed that VHRs made them do more activities.

Some costs and benefits of VHRs are borne or enjoyed by the destination, others are more applicable to foreign tourists or investors. For example, the arguments regarding overtourism, the development of residential areas, the housing market, and compliance apply mostly to the destination. The argument regarding the less expensive and more authentic vacations is enjoyed mostly by tourists. Some other considerations, such as the increased economic activity, competition to hotels, income to homeowners, and flexible supply apply to the destination as well, but the extent to which the general public profits or suffers is dependent on the ownership of the VHRs and of the rest of the tourism industry.

Relevant characteristics of a destination

The positive and negative impacts of VHR are dependent on the characteristics of a destination. This report addresses six considerations.*

1. **Type of listing¹¹**: VHR supply consists of both entire properties and private or shared rooms. The composition of the VHR supply affects several arguments. First, the argument that the general public can earn some additional income applies mostly to private or shared rooms in the owner's home. Second, the effects on the housing market are particularly severe when entire homes are offered to tourists. Third, there may be more nuisance from the tenants when the host is not on site. Entire homes make up the bulk of the supply: about 70 percent of Airbnb renters in a sample of 43 European cities booked an entire property. 83 percent of VHR listings in Puerto Rico are entire homes.
2. **Number of properties of hosts¹²**: VHRs are said to help the general public provide for living expenses. In that case, it could be expected that most listings are owned by hosts with only one listing (single-property hosts). In a sample of 43 European destinations, 55 percent of the Airbnb properties were managed by hosts that rent out multiple units (multi-property hosts). Multi-property hosts collected over 80 percent of total Airbnb revenue in Havana, and 79 percent of VHR revenue in Puerto Rico. There are concerns in Puerto Rico that the owners are foreign investors.
3. **Popularity of the destination¹³**: Developed, mature tourist destinations experience different costs and benefits from VHRs than upcoming destinations. First, VHRs are more likely to lead to overtourism when the destination has already reached or is close to reaching its tourism carrying capacity. Second, when tourism is still developing and growing, competition between hotels and VHRs is probably less severe. Third, the advantage for tourists that VHRs are cheaper mainly applies to destinations with expensive hotels.
4. **Housing shortage¹⁴**: If availability and affordability fall short in a location, the housing market is more likely to be unable to bear the pressure of VHRs.
5. **Attitude of the local population¹⁵**: There are indications that the VHR regulations applying at destinations are related to the perception of the population on whether VHRs lead to rent increases.
6. **Seasonality of tourism**: The seasonal patterns of a destination's tourism industry matter for the argument that flexible VHR supply can accommodate additional tourists during the high season.

* Another consideration may also be the ease with which (foreign) investors have access to financing in the local capital market for buying homes for the purposes of the VHR market. There may be crowding out of regular home buyers on the capital market by (foreign) investors as a result of VHR supply. This has not been investigated in this report.

References

² This paragraph is based on Dogru et al. (2020).

³ See Adamiak (2020) and Bivens (2019) for the argument that competition becomes more intense. See Dogru et al. (2020) and Heo et al. (2019) for an overview of the publications with conflicting findings, and Dogru et al. (2020) for the result of a positive feedback loop and the explanation.

⁴ This paragraph is based on Álvarez-Herranz & Macedo-Ruíz (2021).

⁵ This paragraph is based on Álvarez-Herranz & Macedo-Ruíz (2021), Bivens (2019) and Heo et al. (2019).

⁶ The observation about the flexibility of VHRs and the increased supply during high season is based on Heo et al. (2019). Dogru et al. (2020) also discuss the additional supply by VHRs during periods of peak demand.

⁷ The observation on the spreading is based on Heo et al. (2019), and the resulting opportunities are based on Nieuwland & Van Melik (2020). The downside of the economic developments in neighbourhoods is based on Álvarez-Herranz & Macedo-Ruíz (2021).

⁸ See Álvarez-Herranz & Macedo-Ruíz (2021) for the effect on housing costs of tourism in general and of VHRs in particular; Bivens (2019) for the observation of the elasticity of housing demand; and Santiago-Bartolomei et al. (2022) for the estimates in San Juan, Puerto Rico.

⁹ The observation on the regulations for VHRs and the enforcement is based on Nieuwland & Van Melik (2020).

¹⁰ This paragraph is mostly based on Tussyadiah & Pesonen (2016). Heo et al. (2019) also describe how VHRs can offer lower prices and more authentic experiences. Dogru et al. (2020) mention that VHRs in the United States are less expensive than hotels in destinations with higher-than-average hotel rates, but more expensive in destinations with lower-than-average hotel rates.

¹¹ For the first two arguments, see Santiago-Bartolomei et al. (2022). For the third, see Bivens (2019). See the United Nations Economic Commission for Europe (2022) (Europe) and Santiago-Bartolomei et al. (2022) (Puerto Rico) for the data on entire homes.

¹² Data come from United Nations Economic Commission for Europe (2022) (Europe), Santiago-Bartolomei (2022) (Havana) and Santiago-Bartolomei et al. (2022) (Puerto Rico). The concern about foreign ownership comes from Santiago-Bartolomei (2022).

¹³ The first consideration is based on Tussyadiah & Pesonen (2016) and Adamiak (2020), the second is based on Nieuwland & Van Melik (2020), and the third on Dogru et al. (2020).

¹⁴ For example, Santiago-Bartolomei (2022) claims that Latin American countries have a history of housing issues.

¹⁵ See Furukawa & Onuki (2022).

3. Vacation rentals in Aruba

Summary

VHRs have become an important supplier in the Aruban tourism sector. VHRs account for 11 percent of the housing stock and 28 percent of overnight stays. The Aruban population is positive about the effect of tourism on the island but is concerned about the consequences for the cost of living, the environment and the affordability of housing.

Due to the characteristics of the Aruban economy and the local VHR sector, the disadvantages weigh extra heavily (housing market, overtourism). In addition, there are indications that compliance in the VHR sector falls short. Policies are therefore required that reduce the adverse consequences for society.

Overview of the VHR market in Aruba

VHRs provide more rooms than hotels, but the rates and occupancy are lower

Table 3 Characteristics of vacation rentals, hotels and timeshares.

	Time period	VHRs	Hotels	Timeshares
Rooms	2021-2022	7,615	5,370	3,500
ADR	January 2019 (high season)	\$190	\$450	\$220
	September 2019 (low season)	\$150	\$230	\$140
Occupancy	January 2019 (high season)	65%	90%	92%
	September 2019 (low season)	42%	76%	70%
Revenue	2019	\$71,310,069	\$460,045,732	\$35,655,583
	2022	\$153,093,472	Unknown	Unknown

Source: Amsterdam Bureau for Economics (2023), based on various sources.¹⁶ The data on VHRs are based on AirDNA data, which provide data on rentals on the Airbnb and Vrbo platforms (first row) and Transparent data, which provide data on rentals on the Airbnb, Vrbo, Booking.com & TripAdvisor platforms (second, third and fourth rows). AirDNA data are widely used, not only by the Centrale Bank van Aruba (CBA) in the Aruban context, but also in scientific literature in general.¹⁷

- **Biggest supplier of rooms¹⁸:** According to data from the Central Bank (CBA), VHRs supplied 7,615 rooms in 2022. This implies that VHRs provide more rooms than hotels and timeshares. The VHR supply according to the CBA corresponds to 3,413 rental units and 28 percent of nights spent by tourists. The Aruba Tourism Authority (ATA) estimates the number of units in that same year at 4,203. For comparison, the housing stock consisted of 38,830 units in 2020.
- **Lower rates¹⁹:** The average daily rates (ADRs) of VHRs are lower than the ADRs of hotels. ADRs in timeshares and VHRs are comparable. The lower ADRs allow longer stays. 28 percent of overnight stays take place in a VHR, while only 22 percent of the arriving tourists stay in a VHR. This implies that stays in VHRs last roughly 25 percent longer. It should be noted that the ADRs of VHRs apply to listings rather than rooms.
Critics argue that the low rates are partly due to non-compliance with regulations. They claim that tourism taxes are incompletely paid, and residential rather than commercial rates are paid for utilities. If this is indeed the case, then Aruba has the same issues with lack of compliance as reported in the international literature.
- **Lower occupancy²⁰:** VHRs have a considerably lower occupancy than hotels. Where hotels are almost fully booked in the high season, no more than two thirds of the available VHRs were ever occupied in the years 2019-2022. In 2022, VHR occupancy ranged between 45 percent during low season and 66 percent during high season.
- **Revenue²¹:** The VHR sector generates extensive economic activity. The revenue from VHR bookings amounted to \$153 million in 2022. The Vacation Rentals Professionals Aruba (VRPA) commissioned a study on the value added of the sector to the Aruban economy. The study took into account a wide range of effects. First, it calculated the value of the bookings and made an assumption about tourist spending based on historical data. Secondly, it estimated the indirect effects, which are, for example, the activities of hotel suppliers. Third, it mapped the induced effects. These refer to the expenditure of people who receive income from the VHR sector. The study estimated that the sector accounted for economic activities of \$479 million in 2021 (5,635 jobs). The value added was estimated at \$230 million. This is equivalent to 7 percent of GDP in 2021. Due to the combination of direct, indirect and induced effects, this estimate is optimistic. The estimate can therefore best be seen as an upper limit.

Most VHRs are located in Noord, and many are booked for more than 90 days

Table 4 Rentals and their characteristics by region.

Area	Rentals	Entire homes (% of rentals)	Booked for more than 90 days	Rentals as % of housing stock*
Noord	2,083	1,969 (95%)	47%	25%
Oranjestad	693	576 (83%)	38%	11%
Eagle Beach	386	325 (84%)	61%	11%
Savaneta	140	127 (91%)	56%	6%
Santa Cruz	81	70 (86%)	47%	1%
Cunucu Abao	41	39 (95%)	47%	11%
San Nicolas (South)	52	47 (90%)	42%	2%
Pos Abao	20	20 (100%)	82%	11%

Source: Amsterdam Bureau for Economics (2023), based on AirDNA data and Central Bureau of Statistics (2022).

- **Lower bound²²:** The table above is based on AirDNA data, which takes into account Airbnb and Vrpo rentals. There were 3,496 rentals in this database as of March 2023. This is lower than the 4,203 rentals mentioned by the ATA for 2022. The number of the ATA is based on the Transparent database and includes Booking.com and TripAdvisor rentals in addition to Airbnb and Vrbo rentals. Additionally, some parts of Aruba are not registered in AirDNA. The numbers in the table above should therefore be considered as a lower bound.
- **Noord²³:** Most Airbnb and Vrbo rentals are located in Noord. This means that most of the supply is concentrated in areas where tourism is already developed. There are 2,083 rentals in Noord, out of a housing stock of 7,971. Entire homes on VHR platforms comprise 25 percent of the 2020 housing stock.
- **Booked many days:** A large proportion of the rentals in all regions were booked for more than 90 days in the year prior to the data collection. According to local legislation (ROPV, article 4.3), however, homes may be used for recreational purposes for a maximum of 90 days. This also suggests that compliance is lacking, which is consistent with the international literature.

International literature in the Aruban context

Although VHRs can generate additional tourism income, the sector has serious effects on the housing market, in part due to its commercial nature

There exist several relevant characteristics that determine the balance between the positive and negative effects of VHRs. The table below lists those and presents the data regarding the Aruban context. The table then lists the conclusions drawn from the data. The VHR sector has a commercial character and currently occupies 11 percent of the housing stock. Although the VHR sector enables the accommodation of additional tourists, and although the population is positive about tourism in general, the population is also concerned about the effects of tourism on the cost of living and the affordability of housing. The negative effects weigh heavily, and there is a need for policy.

Table 5 The relevant characteristics that were identified in the scientific literature, as well as their translation to the Aruban context.

Variable	Data on Aruba	Implications for the effects
Type of listing	<ul style="list-style-type: none"> • More than 80 percent of the rentals in any region consist of entire homes (see the previous table). 	<ul style="list-style-type: none"> • The effect on the housing market is real, as entire homes are withdrawn from the market. • The sector has become commercial: most listings belong to owners that are wealthy enough to own at least a second home, rather than small owners looking for additional ways to provide for living expenses. • The owner usually does not live on site. This threatens to cause more nuisance.
Number of properties of hosts ²⁴	<ul style="list-style-type: none"> • The AirDNA database contains several managers that are responsible for more than 50 rentals each. Some even manage more than 100 listings. • The Central Bank of Aruba estimates that at least 11 percent of properties are owned by non-residents. 50 percent of the VRPA members are not Aruban. 	<ul style="list-style-type: none"> • The sector has become commercial: there are sizeable players active in the market, a significant portion of which are foreign.

* The boundaries of the regions on AirDNA do not match the official boundaries one-to-one. The AirDNA regions Oranjestad, Eagle Beach, Cunucu Abao and Pos Abao roughly correspond to Oranjestad West and Oranjestad East. The total number of entire homes in these four regions is equal to 11 percent of the joint housing stock in Oranjestad West and Oranjestad East.

Variable	Data on Aruba	Implications for the effects
Popularity of the destination ²⁵	<ul style="list-style-type: none"> Aruba welcomed 1,100,997 stayover tourists in 2022. Aruban exports mainly consist of international tourism (82,3 percent in 2019). 	<ul style="list-style-type: none"> Aruba is a mature tourist destination. The carrying capacity may not allow for much additional growth in terms of tourist arrivals.
Housing shortage	<ul style="list-style-type: none"> There are 4,203 VHRs out of 38,830 housing units. 	<ul style="list-style-type: none"> The availability and affordability of housing depends on many factors, such as the housing supply and the circumstances on financial markets. Still, the high ratio of VHRs compared to housing units implies that the VHR market contributes to the housing shortage.
Attitude of the local population ²⁶	<ul style="list-style-type: none"> 67 percent of Arubans agree that tourism has a positive or extremely positive impact on Aruba. 52 percent agree that it has a positive or extremely positive impact on themselves and their families. The top 3 tourism concerns among the population are the prices and cost of living, damage to nature and environment and the affordability of housing for locals. 	<ul style="list-style-type: none"> The population appreciates the role that tourism plays on the island. However, people are concerned about the cost of living in general, and the cost of housing in particular. This implies that there is a base of support for measures that mitigate the effect of VHRs on the housing market.
Seasonality of tourism ²⁷	<ul style="list-style-type: none"> Hotel rates can be almost twice as high during the high season as in the low season. For example, the ADR in 2022 was \$448 in January and \$234 in September. 	<ul style="list-style-type: none"> The Aruban tourism industry is characterized by strong seasonal patterns. As a result, there is potential for the flexible VHR supply to accommodate additional tourists in the high season.

Source: Amsterdam Bureau for Economics (2023).

References

¹⁶ For the data on VHRs, see Mungra (2022) (number of rooms) and the Aruba Tourism Authority (n.d.) (other data). For the data on hotels and timeshares, see the Aruba Tourism Authority (2022a) (number of rooms) and the Central Bureau of Statistics (2021) (other data).

¹⁷ For the CBA publication, see: Mungra (2022). For scientific literature in general, see: Adamiak (2020), Dogru et al. (2020), Heo et al. (2019), Santiago-Bartolomei (2022), Santiago-Bartolomei et al. (2022). AirDNA's methodology is published on their website.

¹⁸ See Mungra (2022) for the CBA data (7,615 rooms; 3,413; 28% of nights). See the Aruba Tourism Authority (n.d.) for the estimate of 4,203. See Central Bureau of Statistics (2022) for the data on the housing stock.

¹⁹ See Mungra (2022) for the market share of VHRs in terms of arrivals and nights. For a critical article on compliance by VHRs, see Gomez (2023b).

²⁰ See the Aruba Tourism Authority (n.d.) for data on VHR occupancy.

²¹ See TXP (2022) for the study commissioned by the VRPA. See World Bank (n.d.-a) for the GDP of Aruba in 2021.

²² See the Aruba Tourism Authority (n.d.) for the figure of 4,203 rentals.

²³ See Central Bureau of Statistics (2022) for the data on the housing stock.

²⁴ See Mungra (2022) for the CBA estimate and VRPA (n.d.) for the figures on VRPA members.

²⁵ See the Aruba Tourism Authority (n.d.) for the stayover arrivals and World Bank (n.d.-b) for tourism receipts as a share of exports.

²⁶ See the Aruba Tourism Authority (2022b) for the local sentiment concerning tourism.

²⁷ See Central Bureau of Statistics (2021) for data on hotel rates.

4. Policy

Summary

Cities and regions across the world have adopted a range of policy instruments to regulate the VHR market. These policy instruments are accompanied by positive and negative effects.

Literature identifies three main policy goals: easing the pressure of tourism, protecting affordable housing prices and preserving residential living. These policy goals can be achieved with different policy instruments. A licensing and registration system and enforcement are important conditions for effective policy.

Cities and regions have adopted a range of different policy instruments in order to regulate the VHR market
Multiple cities and regions across the world have adopted policies in order to regulate VHRs. Regulatory policy is highly diverse in its approach. Due to the fact that the growth of VHRs is fairly recent, policies have not yet been in place for a long time and little research has yet been conducted into the effectiveness of the various policies.

Table 6 shows an overview of VHR policies that cities and regions have implemented. In most cases, cities have combined some of the policy instruments shown in Table 6.

Table 6 Overview of policies that cities and regions implemented to regulate the VHR market.

Policy instruments	Description
Complete prohibition	Full ban of VHRs in the entire city or region.
Regulating location	A limit on VHRs in certain designated areas within cities or regions.
Regulating the number of short-term rental homes	A cap on the number of VHRs that a host can list (e.g. one listing per owner).
Restricting number of guests	A cap on the number of guests allowed to stay in VHRs.
Restricting number of days/nights	The implementation of policies and regulations to limit the number of days in a month or year that a housing unit can be used for VHR.
Regulating accommodation type	The implementation of policies and regulations to limit VHRs to certain accommodation or dwelling types, such as limiting VHRs to private or shared rooms within housing units.
Requiring rented rooms to be in owner occupied homes	The implementation of policies and regulations to limit VHRs to owner-occupied housing units.
Prohibiting non-residents purchasing residential properties*	Prohibiting non-residents purchasing residential property for an (un)limited amount of time and/or in certain areas.
House rules	The implementation of house rules in order to reduce nuisance from guests (e.g. rules for trash collection and noise).

Source: Amsterdam Bureau for Economics (2023) based on Santiago-Bartolomei et al. (2022) and Nieuwland & Van Melik (2020).²⁸²⁹

Complete prohibition implies a ban of VHRs in the entire city or region. The positive effect of this policy is that all (possible) negative impacts of VHRs, such as rising housing costs, gentrification and disruption of residential living, are mitigated. The downside is that (possible) positive impacts, such as additional tourism income, the possibility for homeowners to generate extra income and increased competition in the overall hospitality sector, are also mitigated. Another downside of banning the entire VHR market is the risk of an underground VHR market without any supervision or tax revenues. This is what happened in Anaheim (USA) after adopting a full ban on VHRs in 2018. A year later, due the creation of the underground market, the city changed the policy into a more lenient approach where existing VHRs could operate when adhering to strict rules and good neighbourhood policies. To mitigate the growth of the VHR market, it was still prohibited to start new VHRs under the new policy.

Regulating location entails a limit or ban of VHRs in certain designated areas or regions. This policy creates the possibility to ban VHRs in areas where negative effects are common, and allow VHRs in areas that could

* This policy instruments is not directly related to the VHR market. However, it mitigates residential properties to be turned into VHRs by foreign investors. Therefore, this policy instrument does have an indirect effect on the VHR market in places where foreign investors are active on the VHR market.

benefit from their presence. Banning VHRs in certain regions might spread VHRs more equally across the city or within a region, reducing the surge in housing prices and neighbourhood effects without a reduction in tourism (income) for the city or region as a whole. A possible risk of regulating VHRs in touristic regions is that the number of tourists reduce when VHRs are not present in those areas. Another possibility is regulating VHRs in residential living areas, if negative effects from the rise of VHRs are most common there. In New Orleans, this latter policy led to a decline of short-term rental listings in residential areas and a decline in housing prices. The policy however also led to a growth of VHRs in surrounding neighbourhoods, resulting in a surge of housing prices in these regions.³⁰

There are different quantitative restrictions that can be implemented to regulate the VHR market. Regulating **the number of VHRs** can be done for example by only allowing one listing per owner, one listing per address or by implementing density restrictions (a cap on the number of VHRs in a certain area). This restriction affects commercial investors with multiple VHR listings, without affecting VHRs of single homeowners. Multi-property hosts in Cuba, however, circumvented a similar cap by exploiting rentals in relatives' names.³¹ Another possibility is restricting **the number of days/nights** that a VHR can be rented in a certain period. This makes it less attractive to operate and reduces the number of tourists. The downside is that VHRs might only be rented when demand (and price) is highest, such as during the weekends or high season, still leading to a high number of tourists and negative neighbourhood effects. Noise, crowds or other neighbourhood effects can also be reduced by **restricting the number of guests** (i.e. limiting group sizes). In Amsterdam for example, there is a maximum of four guests per vacation home. Barcelona does not allow more guests than the property is built for. A barrier to this policy is the difficulty of tracking compliance.

Qualitative restrictions include the restriction of certain **accommodation types**, for example private or shared rooms within housing blocks, room government subsidized housing, or prohibition on renting out entire homes. This policy affects commercial investors turning homes into VHRs. Another policy that affects commercial investors is **requiring rented rooms to be in owner occupied homes**. In Berlin, listing apartments is only allowed if at least 50 percent of the apartment is used by the property owner. In New York, only permanent residents can rent out vacation homes and in addition need be on-site during the rental period. As the homeowners need to be onsite, negative neighbourhood impact such as noise might be reduced as the host can take guests directly accountable. A barrier for this restriction is the difficulty of tracking compliance. Another policy that might reduce negative neighbourhood effects is requiring certain **house rules** that guests need to obey, such rules for trash collection and noise.

Prohibiting non-residents purchasing residential properties is a policy instrument that does not directly affect the VHR market. However, in areas where a lot of VHRs are owned by foreign investors, this policy does lead to a reduction of residential homes bought by foreign investors and turned into VHRs. The policy does not affect residents and current homeowners in their VHR operations. There is a risk that such policy leads to a reduction in foreign investment and economic activity. As of the 1st of January 2023, Canada implemented this policy in order to make homes more affordable for people living in Canada. The policy lasts for two years and counts for cities with at least 10.000 inhabitants and metropolitan regions with at least 100.000 inhabitants.³²

Table 6 Overview of policies that cities and regions implemented to regulate the VHR market.

Policy instruments			
Measure	Positive effects	Negative effects	Distribution effects
Complete prohibition	<ul style="list-style-type: none"> Combating all negative effects of VHRs (overtourism, surge in housing prices etc.). 	<ul style="list-style-type: none"> Combating all positive effects of VHRs (economic activity, flexible supply etc.). Risk of creating an underground market. 	<ul style="list-style-type: none"> Affects commercial investors and residential homeowners.
Regulating location	<ul style="list-style-type: none"> Better distribution of VHRs across the region. 	<ul style="list-style-type: none"> Possibly more negative effects from VHRs in surrounding areas. 	<ul style="list-style-type: none"> Affects commercial investors and residential homeowners in certain areas.
Regulating the number of VHRs	<ul style="list-style-type: none"> Does not restrict residential homeowners to earn extra income. 	<ul style="list-style-type: none"> Possible (drastic) decline of VHR supply. Policy might be difficult to enforce. 	<ul style="list-style-type: none"> Affects commercial investors only.
Restricting number of days/nights	<ul style="list-style-type: none"> Reduction in the supply of VHRs without fully prohibiting owners to operate. 	<ul style="list-style-type: none"> Can lead to concentration of VHR supply at peak times (high season), accommodating overtourism. 	<ul style="list-style-type: none"> Mostly affects commercial investors.
Restricting number of guests	<ul style="list-style-type: none"> Reduction of nuisance caused by groups of tourists (crowds, noise). 	<ul style="list-style-type: none"> Policy might be difficult to enforce. 	<ul style="list-style-type: none"> Mostly affects commercial investors.
Regulating accommodation type	<ul style="list-style-type: none"> Does not restrict residential homeowners to earn extra income. 	<ul style="list-style-type: none"> Possible (drastic) decline of VHR supply. 	<ul style="list-style-type: none"> Mostly affects commercial investors.
Requiring rented rooms to be in owner occupied homes	<ul style="list-style-type: none"> Does not restrict residential homeowners to earn extra income. The owner can address guests about inappropriate behavior. 	<ul style="list-style-type: none"> Possible (drastic) decline of VHR supply. Policy is difficult to enforce. 	<ul style="list-style-type: none"> Affects commercial investors only.
Prohibiting non-residents purchasing residential property	<ul style="list-style-type: none"> Does not affect residents and current homeowners to earn extra income. 	<ul style="list-style-type: none"> Can lead to a reduction in foreign investment and economic activity. 	<ul style="list-style-type: none"> Affects non-resident commercial investors entering the market.
House rules	<ul style="list-style-type: none"> Reduces nuisance such as noise and trash. 	<ul style="list-style-type: none"> Effect might be small. 	<ul style="list-style-type: none"> Counts for commercial investors and residential homeowners.

Source: Amsterdam Bureau for Economics (2023) based on Santiago-Bartolomei et al. (2022) and Nieuwland & Van Melik (2020).

The policy instruments cities and regions use in order to regulate the VHR market depend on their policy goals

Cities and regions have different rationales to regulate the VHR market. Based on a broad analysis of the issues that different cities face with regards to the VHR market, literature identifies three main policy goals. Based on these policy goals, cities have adopted different policy instruments. Some policy instruments can be used for multiple policy goals.

The first policy goal is to **ease the pressure of tourism**. Policy instruments related to this policy goal focus on limiting the supply of VHRs, in order to reduce the number of tourists. Policy instruments related to this policy goal include the limit or ban of VHRs in certain areas (for example touristic areas). If tourism does not limit to certain areas, a cap on the number of VHRs (resulting in higher prices) can also be a way of reducing the number of tourists. The most rigorous policy is banning VHRs altogether.

The second policy goal is the **protection of affordable housing**. Policy instruments to achieve this goal mostly aim at limiting the commercialization of the VHR sector. Policy instruments include regulating the number of VHRs (e.g. one listing per owner), regulating accommodation types (e.g. ban on complete houses), requiring rented rooms to be in owner occupied homes and prohibiting non-residents purchasing residential properties.

The third and last policy goal is the **preservation of residential living**, which can be achieved by reducing neighborhood effects such as noise, crowds and waste. Policy instruments related to this policy goal include the restriction of the number of guests, in order to limit (big) groups in touristic places and residential areas. Nuisance can also be limited by imposing house rules and requiring rooms to be in occupied homes, such that owners can address guests about inappropriate behavior.

Table 7 The policy instruments cities and regions use in order to regulate the VHR market depend on their policy goals.

Policy instruments	Goal 1: Ease pressure of tourism	Goal 2: Protect affordable housing	Goal 3: Preserve residential living
	Limit supply of VHRs	Limit commercialization of the sector	Reduce neighbourhood effects
Complete prohibition	✓		
Regulating location	✓		
Regulating the number of VHRs	✓	✓	
Restricting number of days/nights		✓	
Restricting number of guests			✓
Regulating accommodation type		✓	
Requiring rented rooms to be in owner occupied homes		✓	✓
Prohibiting non-residents purchasing residential properties		✓	
House rules			✓

Source: Amsterdam Bureau for Economics (2023) based on Nieuwland & Van Melik (2020).

A licensing and registration system and enforcing policy are important conditions for effective policy

Next to policy instruments that are related to the policy goals, there are several other policies that cities and regions have introduced which are unrelated to the policy goals. These include a licensing and registration system, monitoring tools and tax collection policies. Most cities and regions with an overall VHR policy have implemented these policies.

A (online) licensing and registration system obligates VHR owners to have a license in order to operate. Having a licensing system in place makes it easier to implement other policies such as restricting the number of VHRs (limiting the number of VHR licenses that are granted), regulating location (checking zoning compliance before granting license) and monitoring (searching for illegal VHRs without license). Destinations, or VHR platforms on behalf of the destinations, can require providers to include their registration number in the advertisement. Cities that have adopted a (online) licensing and registration system include Denver, Barcelona, New York, Berlin and Reykjavik. Paris has published the registrations in an open data portal, such that residents can signal nuisance and noncompliance.³³

Policy instruments will only be effective if well enforced. Therefore, the development of **monitoring tools** is important to ensure compliance. In Denver, enforcement is done online. VHRs are obligated to advertise with a license number. Enforcement officers search for online vacation home advertisements, and advertisements without a license number are illegal and receive a fine. In practice, enforcement is still difficult because exact addresses are not shown and some hosts take down listings during office hours (when enforcement officers are working) and put listings back on in the evening when most tourists book their holiday. **Punishment for failure of compliance** is common but varies across cities / regions. In most cases hosts, and not guests, receive a fine when violations occur. Fines vary from an amount per day (for example, \$200 a day) to high 'one-time' fine.

Lastly, many cities have implemented **tax collection policies** in order to collect taxes from online VHR platforms. In some cities, such as San Francisco, Amsterdam and London, the online platforms remit tourist tax on behalf of the host. New Orleans and Vienna collect taxes directly from the vacation homes. Collecting taxes in the VHR market raises government revenues and creates a level playing field with the traditional lodging industry. A possible risk is the creation of an underground market for VHRs in order to avoid taxes. This risk arises especially if compliance is not in order.

In the case of Aruba, policies to protect affordable housing seem most suitable and effective enforcement is required

In Aruba, negative effects that stem from the growth of the VHR sector are mostly related to surging housing prices and commercialization of the sector. Policy instruments aimed at mitigating these negative effects include regulating the number of VHRs, restricting the number of days/nights, regulating accommodation type, requiring rented rooms to be in owner occupied houses and prohibiting non-residents purchasing residential properties. These policies mostly affect (non-resident) commercial investors in the VHR market while facilitating residential homeowners to earn additional income. Since the VHR sector in Aruba is commercialized, policy

instruments that affect commercial investors could have a significant impact on the VHR sector and should therefore be designed carefully.

Several policies are already in place. The Aruban permit ordinance requires a lodging permit, there is a cap of 90 days that a VHR can operate in residential areas (article 4.3 of the ROPV) and a lodging permit only allows less than 10 guests. There is reason to believe that enforcement of these policies is not effective. Effective enforcement will be crucial for effective VHR policy.

A broader view on the housing market

The policy instruments applied internationally are targeted at the VHR market specifically. Aruban stakeholders have made several proposals to mitigate the negative effects of VHRs through measures that affect the entire housing market. These proposals include supporting affordable housing with the revenues from a license fee³⁴ and restrictions on foreign ownership of Aruban real estate and ensuring that foreign investors pay a fair share of taxes in Aruba³⁵. The assessment of these proposals falls outside the scope of this report, which summarizes the international scientific literature on VHR regulations.

References

²⁸ See Santiago-Bartolomei (2022).

²⁹ See Nieuwland & van Melik (2020).

³⁰ See Van Holm (2020).

³¹ See Santiago-Bartolomei (2022).

³² See Government of Canada (2022).

³³ See Heo et al. (2019) for the Parisian policy.

³⁴ See VRPA (n.d.).

³⁵ See Gomez (2023a).

Appendix A. References

- Adamiak, C. (2020). Peer-to-peer accommodation in destination life cycle: the case of Nordic countries. *Scandinavian Journal of Hospitality and Tourism*, 20(3), 212-226.
- Álvarez-Herranz, A., & Macedo-Ruiz, E. (2021) An Evaluation of the Three Pillars of Sustainability in Cities with High Airbnb Presence: A Case Study of the City of Madrid. *Sustainability*, 13(6), 3220.
- Aruba Tourism Authority. (2022a). *Key Performance Indicators*.
- Aruba Tourism Authority. (2022b). *Local Sentiment 2022*.
- Aruba Tourism Authority. (n.d.). *December 2022*.
- Bivens, J. (2019). *The economic costs and benefits of Airbnb: No reason for local policymakers to let Airbnb bypass tax or regulatory obligations*. Economic Policy Institute.
- Central Bureau of Statistics. (2021). *Accommodation Statistics – Hotels – Timeshare 2009-2018 (Monthly)* [Data set]. Retrieved from <https://cbs.aw/wp/index.php/2021/12/16/accomodation/?download=17684>
- Central Bureau of Statistics. (2022). *Housing units by location and period of construction* [Data set]. Retrieved from <https://cbs.aw/wp/index.php/2022/06/17/tables-with-general-characteristics-of-living-quarters-b-2/?download=18510>
- Dogru, T., Mody, M., Suess, C., McGinley, S., & Line, N.D. (2020). The Airbnb paradox: Positive employment effects in the hospitality industry. *Tourism Management*, 77, 104001.
- Furukawa, N., & Onuki, M. (2022). The design and effects of short-term rental regulation. *Current Issues in Tourism*, 25(20), 3245-3260.
- Gomez, L. (2023a). Aruba's Housing Crisis: Why Foreign Investors and Vacation Rentals are Driving Prices Up for Locals. *About The Laws*. Retrieved from <https://www.aboutthelaws.com/arubas-housing-crisis-why-foreign-investors-and-vacation-rentals-are-driving-prices-up-for-locals/>
- Gomez, L. (2023b). Aruba's Housing Crisis II: Airbnb type Owners Abuse Policies and Subsidized Rates. *About The Laws*. Retrieved from <https://www.aboutthelaws.com/arubas-housing-crisis-ii-airbnb-type-owners-abuse-policies-and-subsidized-rates/>
- Government of Canada (2022). Prohibition on the Purchase of Residential Property by Non-Canadians Regulations: SOR/2022-250. Retrieved from <https://canadagazette.gc.ca/rp-pr/p2/2022/2022-12-21/html/sor-dors250-eng.html>
- Heo, C.Y., Blal, I., & Choi, M. (2019). What is happening in Paris? Airbnb, hotels, and the Parisian market: A case study. *Tourism Management*, 70, 78-88.
- Van Holm, E.J. (2020). Evaluating the impact of short-term rental regulations on Airbnb in New Orleans. *Cities*, 104, 102803.
- Mungra, P. (2022, May 18). *Preliminary estimate of Aruba's Vacation Home Rental tax revenue potential*. Centrale Bank van Aruba.
- Nieuwland, S. & Van Melik, R. (2020). Regulating Airbnb: how cities deal with perceived negative externalities of short-term rentals. *Current Issues in Tourism*, 23(7), 811-825.
- Runhaar, P. (2021, 26 August). Van Airbnb naar Fairbnb: de opkomst van de platform-coöperaties. *Het Financieel Dagblad*. Retrieved from <https://fd.nl/futures/1408803/van-airbnb-naar-fairbnb-de-opkomst-van-sociaal-gedreven-platformcooperaties>
- Santiago-Bartolomei, R. (2022). In Two Caribbean Cities, Digital Platforms Drive Gentrification. *NACLA Report on the Americas*, 54(3), 324-329.

Appendix A. References

Santiago-Bartolomei, R., Lamba-Nieves, D., Figueroa-Grillasca, E.A., & Santiago-Venegas, Y.A. (2022). *The Impact of Short-Term Rentals in Puerto Rico: 2014-2020*. Center for a New Economy.

Tussyadiah, I.P., & Pesonen, J. (2016). Impacts of Peer-to-Peer Accommodation Use on Travel Patterns. *Journal of Travel Research*, 55(8), 1022-1040.

TXP. (2022). *The Economic Impact of Vacation Rentals in Aruba*.

United Nations Economic Commission for Europe. (2022). *Sharing economy and its effects on housing markets*. United Nations.

VRPA. (n.d.). *VRPA Directive for responsible and sustainable vacation rentals in Aruba*.

World Bank. (n.d.-a). *GDP (current US\$)*. Retrieved from <https://data.worldbank.org/indicator/NY.GDP.MKTP.CD>

World Bank. (n.d.-b). *International tourism, receipts (% of total exports)*. Retrieved from <https://data.worldbank.org/indicator/ST.INT.RCPT.XP.ZS>