

Sun, Sand, and Services: Tourism and Household Welfare in Jamaica*

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Abstract

Tourism services have seen marked growth over the previous two decades. A number of lower and middle-income countries have sought to take advantage of this boom in demand for tourism in the hopes of driving economic development. Even so, there remain significant questions about the ability of tourism to contribute to robust and inclusive prosperity for local populations in developing countries. I address this gap in the literature by investigating these questions in Jamaica, an upper middle-income country that has made the export of tourism services the foundation of its development strategy. I combine an incredibly rich and granular dataset of tourist expenditure surveys from the Jamaican Ministry of Tourism, with a detailed nationally representative household expenditure survey, both spanning nearly two decades. Linking tourist activity and individual households across consistent spatial units, I employ a shift-share instrumental variable identification strategy to estimate the effects of changes in tourism revenues on the welfare of local households. I find increases in real consumption and welfare for urban households, working in mid-skilled occupations in non-tourism services and manufacturing. I discuss the implications of these findings for our understanding of the welfare impacts of tourism specialization in developing countries, and for the design of policies that aim to harness and scale tourism in service of development.

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1 Introduction

The growth of service sector industries has become a defining feature of structural change in modern developing economies. Tourism has been one of the most important sources of growth within global services ([World Tourism Organization 2023](#)), and this has been especially true for lower and middle income countries (LMICs) ([Nayyar et al. 2021](#)). Despite the undeniable growth in tourism services, there remain significant questions about the ability of tourism to generate economic growth that raises real consumption levels across a broad cross section of the population. There is also uncertainty about the scope for tourism to generate positive spillovers to other sectors of the economy through forward and backward linkages.

Some of the existing work on tourism services has found that tourism-specializing regions experience long-run economic benefits, in part driven by spillovers to manufacturing ([Faber and Gaubert 2019](#)). Other work has focused on the effects of urban tourism in large cities. These studies have found that the benefits to local residents in terms of income or improved amenities must be weighed against increases in the cost of living when determining welfare outcomes ([Almagro and Domínguez-lino 2025](#); [Allen et al. 2021](#)). It is also necessary to consider the extent to which the amenity preferences of locals align with those of tourists ([Almagro and Domínguez-lino 2025](#)). Much of the existing work has either taken place in industrialized countries with large domestic tourism industries, or has focused on aggregate local and national effects without being able to deeply consider household heterogeneity. There is thus, a lack of evidence from developing economies for tourism’s short-to medium run effects on individuals and households across different skill-levels, industries, and incomes. This is partially due to data availability, and partially to the difficulty of measuring tourism activity. This paper contributes to the literature by investigating the relationship between tourism and household welfare, quantifying its effects on different skill segments of the labor force, and characterizing the heterogeneity of its impacts across socioeconomic segments in Jamaica, an upper-middle income country that has made tourism a centerpiece of its development strategy.

In this study, I address two central questions. First, do increases in tourism activity in Jamaican municipalities increase real per-capita consumption expenditures for households within that municipality? Second, conditional on observing increases in real per-capita consumption, to what extent are these consumption increases observed among households below or near the poverty line? More broadly, this paper sets out to provide an answer to the larger question of whether or not it is possible to leverage tourism for economic development that benefits the poorest in a community. I show that in the short to medium-run, increases in an area’s tourism revenues increase real consumption levels, lower poverty, and primarily benefit those in the lower quartile of the consumption distribution. These effects, however, are only present for urban households. This paper harnesses two unique and granular datasets spanning 2001-2021: a detailed survey of tourist spending behavior, and nationally representative household expenditure surveys. In order to account for the likely endogeneity of local tourism, I employ a shift-share instrumental variable strategy. I exploit exogenous variation in the number of tourists from different regions of origin who choose to visit Jamaica, as well as variation in where in Jamaica they stay. There was significant temporal and spatial variation in tourism ac-

tivity and household welfare across Jamaica during the period 2001-2021. Those years saw marked growth in the industry, but also considerable volatility, and this variation enables me to identify the effects of tourism growth on the welfare of locals.

The growth of Jamaican tourism, the heterogeneous exposure of individual communities across the island to the industry, and sizable year-to-year variation in performance of the sector, motivates this study of the effects of tourism on local communities. We can view booms in tourist activity in an area as demand shocks for local tourism services. Tourism’s labor intensity means that an increase in demand for tourism services can be expected to produce an increase in demand for local labor. As a consequence of its debatable impact on local communities and its tradable nature, tourism has drawn comparisons to natural resource ventures (Ngasam et al. 2024). To guide this analysis I draw from the predictions of work on tourism (Allen et al. 2021; Almagro and Domínguez-Iino 2025), as well as work on local demand shocks and resource booms (Moretti 2010; Moretti 2011; Aragón and Rud 2013). The local labor demand shocks framework of Moretti (2010) and Moretti (2011) predicts that an increase in demand for labor-intensive services such as tourism will raise local earnings (and therefore local consumption levels), relative to earnings in communities that do not experience the shock. This may then result in higher earnings for workers in other sectors because of higher consumption levels, owing to a larger local budget constraint. A positive tourism shock may also produce inflationary effects because of the increase in local earnings (Moretti 2010; Aragón and Rud 2013), or because of more tourists consuming local goods and services (Allen et al. 2021; Almagro and Domínguez-Iino 2025). The skill levels of the workers who benefit are predicted by Aragón and Rud (2013) to depend on the skill-composition of the industry experiencing the demand shock. Given that lower to mid-skilled occupations comprise 83 percent of the Jamaican tourism workforce¹, it is reasonable to expect a tourism shock to yield gains for those workers. Finally, because those in the lower segments of the expenditure distribution are more likely to work in low to mid-skilled occupations², I would expect households below or near the poverty line to experience the greatest benefit in the Jamaican setting.

I find that greater development area tourism revenues have a positive effect on real per-capita expenditures. In particular, an increase in area revenues of 10 million U.S. Dollars generates a 2.7 percent increase in per-capita expenditures for urban households within a development area relative to households in districts that did not receive the shock. Because the median tourism districts see increases in real earnings of roughly 7.9 million in a given year, these figures translate to an increase in real expenditures of 97 U.S. Dollars relative to households in areas that do not experience an increase in tourism levels. Households increase their food and non-food expenditures by 2.3 percent and 2.9 percent, respectively, though these are not statistically different from one another. Increased real expenditure on medical services and products represents 33 percent of the change in non-food expenditures, while there is no change in real spending on education or loan repayments. Lending further support to the interpretation of these effects as improvements in well-being, house-

¹Source: Calculations based on 2001-2021 Jamaica Survey of Living Conditions

²91 percent of households in the lowest quartile of the expenditure distribution are employed in low or medium occupations, versus 69 percent for households in the 4th quartile. Source: Calculations based on 2001-2021 Jamaica Survey of Living Conditions.

holds are .6 percent less likely to be below the poverty line for every 10 million dollar increase in tourism revenues.

As expected, there is an increased likelihood that a surveyed household works in a tourism related industry following a positive shock to development area tourism revenues.³ Surprisingly, the increases in real expenditures are driven by those who work in non-tourism sectors, who on average see an increase in real per-capita spending by of 2.9 percent per additional 10 million U.S. Dollars in tourism revenues. There is no statistically significant effect on real expenditures for households working in the tourism sector. Similarly, decreases in poverty are entirely driven by non-tourism households. I subsequently show that it is urban skill-level 2 occupations (those requiring up to a secondary education) that are the primary beneficiaries of increased tourism revenues.⁴ The level 2 occupations that benefit are “Service, Craft, and Trade Work” and “Plant and Machine Operators”. Using a quantile regression, I find that urban households in the bottom two quartiles of the urban consumption distribution who benefit from increased tourism levels.

Finally, I provide additional support for these results by utilizing an unbalanced panel of households that is a subset of the main repeated cross-section. The panel regressions show that the effects of increases in tourism revenues are concentrated among the households that are employed in non-tourism services and manufacturing during all periods that they are observed. The households that benefit on average are those whose per-capita expenditure falls into quartiles 1-3 of the consumption distribution in the first period that they are observed. In order to confirm that these results are not driven by cost of living increases I run two additional regressions. The first shows that there is no effect of tourism earnings on real rent expenditures for households. The second shows that the effects of tourism are driven by workers in private sector employment, with no change in real consumption for government workers whose salaries are set nationally, and are unlikely to reflect changes in local tourism levels. These results further support the argument that the observed increases in expenditures reflect increases in real consumption and welfare.

Jamaica is an informative setting in which to study the relationship between tourism and local household welfare for two reasons. The first is that Jamaica is comparable with a key subset of countries in its level of economic development and industrialization, the type of tourism in which it has a comparative advantage, and the skill levels of its labor force. Jamaica is a middle-income country heavily dependent on services, which make up 70 percent of its economic output. This is similar to the large group of developing economies increasingly specializing in services and failing to industrialize (Rodrik 2016). An island nation located in the Caribbean Sea and endowed with world famous beaches and a tropical climate, Jamaica has specialized in “Sun, Sand, and Sea” style tourism that is most popular in such climates. Regions endowed with similar cli-

³Only the employment of the principal earner or the head of household is considered in these calculations. Going forward, whenever employment or work of a “household” is mentioned, this is referring to the employment of the principal earning member of the household or the head of household.

⁴This classification is based on the 2008 International Standard For the Classification of Occupation (International Labour Office 2012) developed by the International Labour Office. Level 1 (elementary) occupations require no or very little training or schooling. Level 2 occupations generally require up to a secondary education. Level 3 and 4 occupations comprise professionals, technicians and managers, and typically require some kind of tertiary level training. I will refer to Level 1 Occupations as Low-Skilled or Unskilled occupations, while level I refer to as Mid-Skilled, and levels 3 and 4 as High-Skilled.

mates include Latin America, Sub-Saharan Africa, Southeast Asia, and the South Pacific. As is the case for many middle-income countries, Jamaica’s labor force is overwhelmingly made up of workers qualified for low and mid-skilled occupations.

A primary objective for emerging economies is to develop industries that are able to absorb this large supply of labor, and this is one of the major strengths of tourism (Nayyar et al. 2021). The second attribute of Jamaica that makes it useful for study is the country’s aggressive pursuit of tourism lead growth. Jamaica’s shared characteristics with a number of countries and its pursuit of tourism oriented development mean that findings from this setting can provide insights relevant to a number of other countries. These findings may be useful for countries that have also pursued tourism lead growth and wish to better understand their outcomes, or they can be informative for places considering such a growth strategy. The interest in tourism as an engine of development can be seen in the diverse set of countries that have developed strategic plans for expanding their tourism industries. These include Indonesia⁵, Botswana⁶, and India.⁷

This paper contributes most directly to the small but growing literature studying the effects of tourism on local and national economies. One segment of this literature has focuses on utilizing aggregated regional or country-level outcomes in order to quantify the impacts of tourism. In the context of Mexico, Faber and Gaubert (2019) investigate the long-run effects of tourism specialization and find that tourism-producing municipalities have experienced significant long-run gains relative to non-touristic regions. These outcomes are due in part to backward linkages to the manufacturing sector. In Thailand, Wattanakuljarus and Coxhead (2006) find that growth in tourism raises aggregate income, but worsens inequality. Work by Croes et al. (2021) in Poland find that tourism specialization generates short-run economic gains, but these gains do not persist in the long-run. Another emerging strand of the tourism literature has investigated the welfare impacts of tourism on locals in urban centers, such as Barcelona (Allen et al. 2021) and Amsterdam (Almagro and Domínguez-Iino 2025). These studies focus on the “crowding out” effects of tourism on local residents in terms of living expenses or amenities. In their paper, Allen et al. (2021) show that tourism’s effects on the well-being of local residents exhibits a tension between tourism-driven wage growth and tourism-induced cost of living increases. They find that while on average local workers suffer, there is substantial heterogeneity in effects across space. In the case of Amsterdam, Almagro and Domínguez-Iino (2025) reveal that the aggregate welfare effects of more tourist-focused amenities on locals are a function of the distribution of local preferences over amenities, and resident demographic characteristics such as age. This paper is most similar to Allen et al. (2020) in my usage of a shift-share instrumental variable strategy exploiting variation in tourist origin countries, and in the main goal of quantifying the welfare effects of tourism on locals. My paper differs significantly, however, across a number of dimensions. These include, the economic context in which the research takes place, the type of tourism that is dominant in this context, the time period covered by the analysis, and more generally in the focus of my paper on investigating the capacity of tourism to drive broad eco-

⁵Ministry of Public Works and Housing 2018.

⁶Botswanan Ministry of Environment, Natural Resources, Conservation, and Tourism 2021.

⁷Indian Ministry of Tourism 2022.

conomic development.

This study builds upon the existing literature on tourism in four specific ways. First, through harnessing the rich household data, this study is able to provide answers about how the earnings of tourism accrue differently to individual households across characteristics such as socioeconomic status, skill-level and industry of employment, and geography. Furthermore, through analyzing disaggregated components of consumption, this paper is able to better capture key aspects of household-level well-being in a manner that is not possible in aggregated regional or national analyses. Second, the temporal breadth of the data enables this analysis to capture the effects of significant and uneven growth of the tourism sector across space in Jamaica. This provides useful variation for accurately estimating the true effects of tourism services on local residents.

The third way in which this paper adds to existing work on tourism is that it analyzes the effects of tourism services on households for a type of tourism that is different in important ways from the type of tourism taking place in some of the previously mentioned studies. Whereas tourism in Amsterdam and Barcelona is primarily residential and generally well-integrated with the urban environments ([Almagro and Domínguez-lino 2025](#); [Allen et al. 2020](#)), Jamaican tourism is largely characterized by tourists choosing “All-Inclusive” vacation packages.⁸⁹ We may therefore expect the implications of tourism booms for spillovers to other sectors, or crowding out effects on locals to be different from those in integrated urban tourism settings. Furthermore, tourism services in Jamaica are overwhelmingly exported, with more than 90 percent of Jamaican tourism revenue coming from international visitors in 2023 ([STATIN 2019](#)) compared to approximately 20 percent in Mexico ([Faber and Gaubert 2019](#)). To the extent that the export share of tourism is associated with different skill requirements for workers, interactions with the local economy, and vulnerability to external shocks, this distinction could have important welfare implications for tourism on the welfare of local residents. Finally, this paper contributes to investigating the impacts of tourism in an emerging economy that has yet to substantially industrialize¹⁰, and which is largely specialized in services.¹¹ Thus we may expect that the scope for tourism to have spillovers to other sectors may differ from countries with substantial manufacturing activity, such as Mexico.¹²

This study also contributes to the expansive literature working at the intersection of service-led structural transformation and economic development. In recent years there has been significant research into the declining relative share of manufacturing in many emerging economies, or “premature de-industrialization” ([Rodrik 2016](#)). This trend has raised concerns as manufacturing growth has traditionally been the means by which countries improve their productivity, grow their economies, and raise living standards. There is still significant uncertainty about whether or not services such as tourism are capable of filling the productivity

⁸Jamaican Ministry of Tourism 2025.

⁹This “enclave” approach tourism is common in developing country contexts ([Issa and Jayawardena 2003](#)), and is often characterized by visitors spending significantly less time and money in the communities in which they vacation ([Çiftçi et al. 2007](#))

¹⁰The manufacturing value added share of GDP in the Jamaican economy was roughly 8 percent in 2024 according to The World Bank Development Indicators: <https://data.worldbank.org/indicator>

¹¹Services comprised 60 percent of 2024 GDP for Jamaica according to the World Bank Development Indicators

¹²Manufacturing value added comprised 20 percent of Mexican GDP in 2024 according to The World Bank Development Indicators: <https://data.worldbank.org/indicator>

enhancing role traditionally played by manufacturing.

Work such as that by [Nayyar et al. \(2021\)](#) view services such as tourism as unlikely to possess the ability of manufacturing to absorb low-skilled labor while also generating productivity growth. Some work, however, has shown the potential strengths of specializing in services. For example, [Fan et al. \(2023\)](#) show that India gained from service sector specialization in large part because of the increase in productivity in urban consumer services that benefited wealthy urban dwellers. Work by [McCullough \(2025\)](#) in Tanzania shows that service-focused structural transformation has the ability to generate local employment, the scope for long-term growth may be limited due to the constrained size of local markets and low productivity growth. This paper provides insight into the implications of tradable service sector specialization for local residents, and also is able to characterize how the effects of shocks to a tradable service sector impact heterogeneous households.

Other studies have detailed the potential challenges of non-industrialization driven structural change. Studies by [Gollin et al. \(2016\)](#) and [Venables \(2017\)](#) discuss how gains from urbanization depend on whether or not the industries in an urban area exhibit growth in productivity. They also show how urbanization that draws large numbers of people into lower productivity non-tradable services could, in fact, dampen long term growth. In this way such a type of urbanization could contribute to effects consistent with the “Dutch-Disease” framework developed by [Corden and Neary \(1982\)](#), or the “Cost Disease” framework introduced by [Baumol and Bowen \(1965\)](#). This paper provides empirical evidence of how shocks to a major tradable service sector impact household welfare in a country where the economy has progressed directly from being based upon natural resources, to services.

Finally, this paper contributes to the literature studying the effects of sectoral shocks on local economies. A significant subset of this literature relates to the effects of resource windfalls or natural resource ventures on local communities ([Aragón and Rud 2013](#); [Aragón and Winkler 2023](#); [Bonilla Mejía 2020](#); [Boire 2021](#)). Other studies have investigated the effects of manufacturing growth on decisions regarding human capital accumulation in settings such as Bangladesh [Heath and Mobarak \(2015\)](#) and Mexico [Atkin \(2016\)](#). This paper provides novel insights into the magnitude of the effects of tourism booms on the well-being of local households in a developing country. As a major global sector that has experienced considerable growth and that has come to dominate many economies, understanding tourism’s effects on the communities it impacts is of great relevance.

In Section 2, I present background information on the Jamaican economy and tourism. Section 4, details the effects of tourism shocks predicted by the literature and lays out four testable hypotheses. Section 5 explains the datasets used for the study, while Section 6 presents the empirical specification. Section 7 explains the findings of the study and Section 8 discusses the implications of the findings and concludes.

Table 1: Global, Regional, and Jamaican Tourism Statistics

Indicator	Value
Panel A: Global & Caribbean Region Tourism Statistics	
International Tourist Arrivals (2023)	1.3 billion USD (UNWTO)
International Tourism Export Revenues (2023)	1.8 trillion USD (UNWTO)
Global tourism GDP share (2023)	3% (UNWTO)
Share of Global Trade in Services	23% (UNWTO)
Average Growth In International Arrivals (2000-2023)	4.1% annually (UNWTO)
Caribbean Tourism arrivals (2024)	34.2 Million (CHTA)
Tourism Average Share of Caribbean GDP (2015-2019)	25.4% (OECD)
Panel B: Jamaican & Caribbean Tourism	
Total Tourist Arrivals to Jamaica (2024)	4.15 Million (MOT)
Total Stopover Arrivals to Jamaica (2024)	2.9 Million (MOT)
Total Cruise Passenger Arrivals to Jamaica (2024)	1.25 Million (MOT)
Total Roomnights Sold in Jamaica (2024)	5.75 Million (MOT)
Jamaica Total Tourism Earnings (2024)	4.2 billion USD (MOT)
Panel C: Jamaican Tourism Sector Capital Stock & Infrastructure	
Jamaica Hotel Room Capacity (2024)	26,427 Rooms (MOT)
Average Growth in Hotel Room Stock (2000-2024)	2.6% (MOT)
Total Number of Hotels (2024)	210 Properties (MOT)
Total Number of Workers in Accommodation & Restaurant Services (2024)	43,913 (MOT)
2025/2026 Ministry of Tourism Budget	95.5 Million USD (MOT)

Source: This table provides an overview of global, Caribbean, and Jamaican tourism scale. Data comes from the United Nations: World Tourism Organization (UNWTO), the Caribbean Hotel & Tourism Association (OECD), the Jamaican Ministry of Tourism (MOT), and the Organization for Economic Cooperation and Development (OECD). A roomnight is a single overnight booking of a hotel room by an individual or party.

2 Context and Background

2.1 Jamaica and Tourism

Jamaica is an island nation located in the Northern Caribbean Sea with a population of 2.8 million people. An upper middle-income country, Jamaica’s economy is heavily reliant upon tourism, which accounts for 10 percent of GDP directly, and for 30 percent of GDP when considering back-linkages (Mooney 2020). The tourism sector also comprises about 30 percent of the labor force when measuring direct and indirect employment (Mooney 2020). Other Caribbean countries have comparable levels of specialization in tourism services, with tourism comprising an average of 25 percent of Caribbean GDP between 2015 and 2019 according to the OECD (OECD and Inter-American Development Bank 2024).

Following independence in 1962 the Jamaican government sought to speed economic development by Jamaica natural resources of “beaches and bauxite” King (2001). The government created the Ministry of Tourism and instituted various laws such as The Tourist Board Act (1969), and the Hotel Incentives Act (1971) to support the development of the new industry.

Considerable investments were made in infrastructure and advertising with the goal of attracting foreign direct investment. The geographic base of the industry is along Jamaica’s northern and western coasts¹³, although in recent years there has been increasing development along the Southwest and Northeast coasts as

¹³The unofficial capital of Jamaica’s tourism industry is Montego Bay in the Northwest of the island. Montego Bay is Jamaica’s second largest city behind the capital and industrial hub of Kingston. Even so, Montego Bay is the point of entry for the vast majority of international tourists visiting the country for vacation (Jamaican Ministry of Tourism 2025).

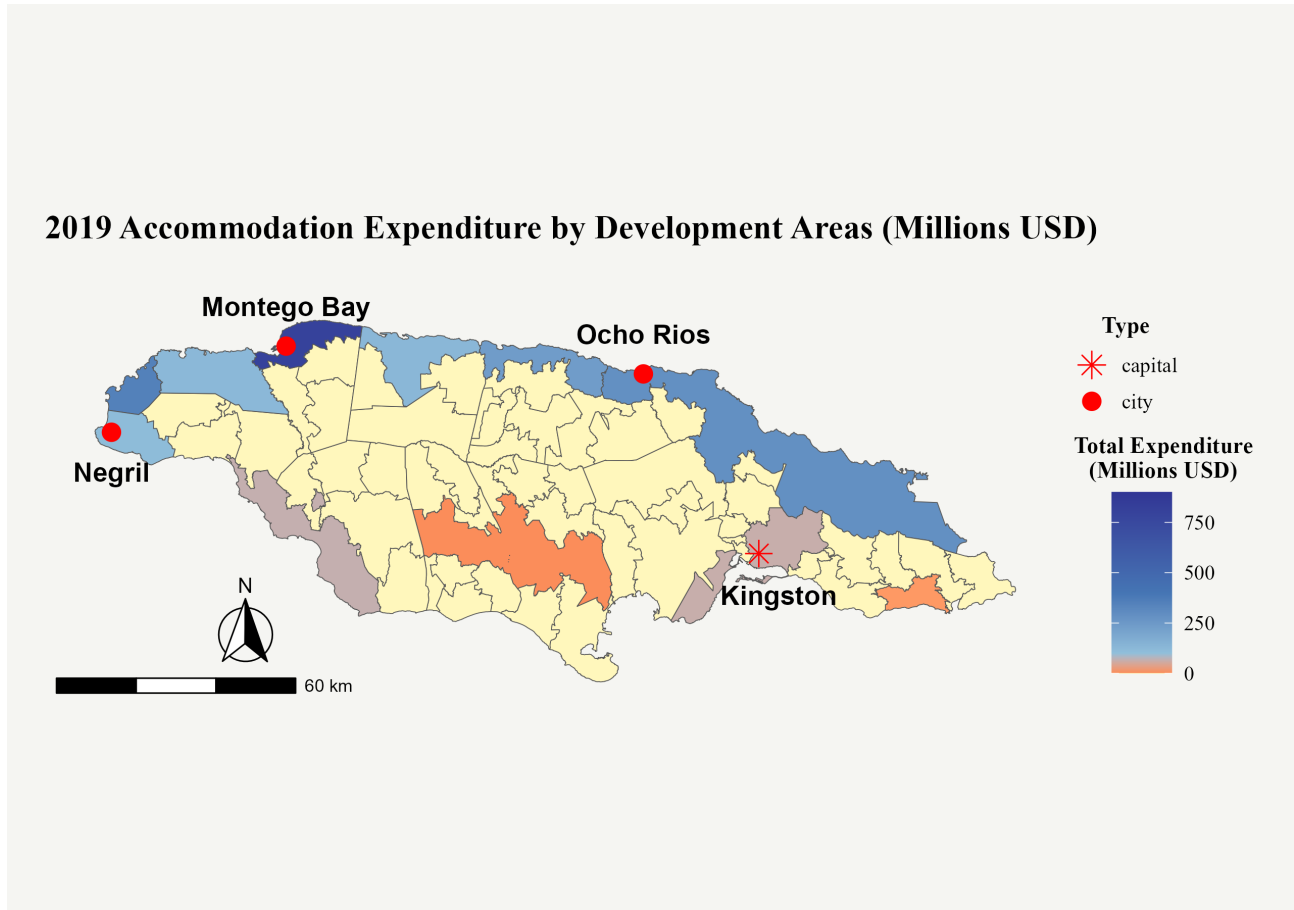


Figure 1: **Tourism Accommodation Expenditures Across The Island**

Figures estimated from the Jamaican Ministry of Tourism Exit Surveys combined with annual arrival data provided the MOT annual reports. All values are in 2024 U.S. Dollars. Yellow shading means that a particular development area received no accommodations revenues in 2019.

well. In 2019, over 75 percent of visitors stayed at accommodations located in either Saint James, Trelawny, Saint Ann, Saint Mary, Westmoreland or Hanover.¹⁴

Of the more than 4.2 million visitor arrivals in 2024, roughly 2.7 million were “stopover” visitors; those who spent at least 24 hours in the country according to the MOT ([Jamaican Ministry of Tourism 2025](#)). The remaining 1.6 million are visitors arriving on cruises, who typically spend less than a day in the country. Although stopover visitors made up about 56% of total arrivals to Jamaica, their spending made up more than 95 percent of total visitor expenditure, as can be seen in the MOT Annual Statistics publication for 2024 ([Jamaican Ministry of Tourism 2025](#)). Therefore, in order to best understand the impact of tourism on economic development, it is reasonable to devote the greatest attention to the population of stopover arrivals.

As expected, the tourism industry is an important employer. According to the IADB, the tourism sector employed approximately 250,000 Jamaicans in 2019 either directly or indirectly ([Mooney 2020](#)). This

¹⁴Source: [Jamaican Ministry of Tourism \(2020\)](#). See figure 12 in the appendix for a map of Jamaica with the names of the Parishes.

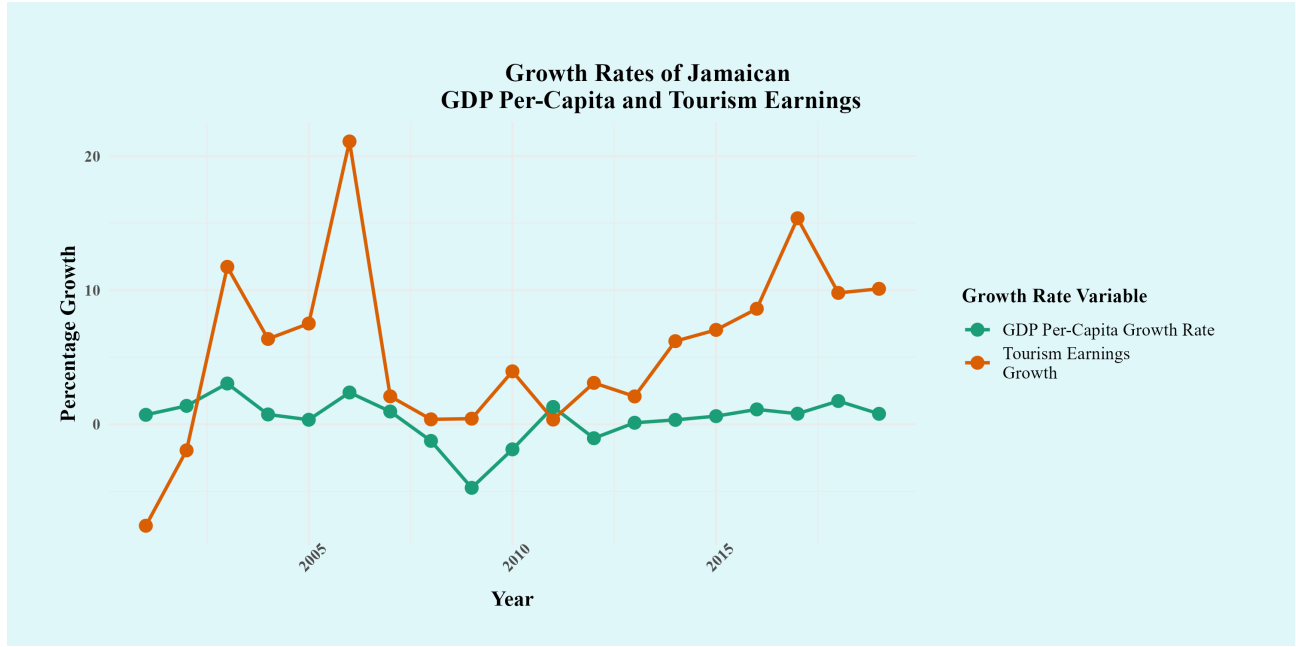


Figure 2: **Tourism vs. GDP Per-Capita Growth**

Source: World Bank Development Indicators. This graph shows a comparison of year over year growth rates for Jamaican tourism revenues and the growth rate of GDP Per-Capita.

was roughly a quarter of the labor force at the time. Given spatial variation in the intensity of touristic activity and temporal variation in this intensity, there exists the opportunity to causally identify the impacts of tourism on Jamaican households.

The tourism sector has grown considerably over the last 60 years, and since 2000, arrivals have grown on average 5% per year and the room stock has grown at an average annual rate of 2.6%. However, the strong performance of the tourism industry has not translated into similar success in larger economy. Over the same period, growth rates of real GDP per capita have oscillated between 1 and -1 percent. Value added per worker has been mostly stagnant, even as the tourism share of the labor force has grown and the industry is marketed as the key to generating long-term national prosperity.

Jamaica’s tourism product is based heavily around the ‘All-Inclusive’ resort model ¹⁵, as is the case in many developing economies dependent on tourism (Tavares 2015). This resort model is characterized by accommodations that provide a comprehensive package of accommodations, dining and activities, restricted primarily to the resort premises (Issa and Jayawardena 2003). As a result, tourists often spend considerably less time and money in the communities in which resorts are located than when staying in other types of accommodations (Çiftçi et al. 2007). This is markedly different than the residential and urban style tourism common in destination like Barcelona or Amsterdam, where visitors typically stay in hotels or short-term rentals located in area popular with tourists (Allen et al. 2021), and spend on attractions, goods, and food directly

¹⁵According to the Ministry of Tourism in 2027 87 percent of hotel roomnights sold were for all-inclusive resorts, and all-inclusive resorts 79.5 percent of the hotel room stock (Jamaican Ministry of Tourism 2025).

Table 2: Household Characteristics: Urban - Rural Comparison

	Urban Households		Rural Households		Comparison
	Mean	SD	Mean	SD	T-Statistic
Per-Capita Consumption Expenditure	3602.86	3161.80	2682.49	2292.67	25.35***
Per-Capita Total Expenditure	3990.83	3983.195	2889.95	2762.260	24.26***
Per-Capita Food Expenditure	1613.62	1289.520	1355.71	1308.996	14.04***
Per-Capita Non-Food Expenditure	1990.36	2319.748	1327.30	1362.054	26.84***
Per Capita Non Consumption Expenditure	523.55	1487.020	292.83	1008.639	11.60***
Non-Food Share of Consumption Expenditure	0.52	0.145	0.48	0.135	24.67***
Non-Food Share of Tot. Expenditure	0.48	0.139	0.46	0.131	19.51***
Consumption Share of Tot. Expenditure	0.95	0.095	0.96	0.080	-12.44***
Observations	11196		18370		29567

Notes: All statistics are weighted by household size. All values are provided in 2024 U.S. Dollars. Non-Consumption expenditure relates to spending on services such as insurance, legal fees, and education. Total expenditure is equal to the sum of consumption expenditure and non-consumption expenditure. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

within the local community.¹⁶

These differences in spending patterns and the structure of tourism may well result in very different welfare outcomes even from shocks of comparable magnitudes, which further supports the relevance of my study.

3 Jamaican Economy Background

3.1 Household and Labor Force Heterogeneity

Despite Jamaica’s relatively small size there is great variation in consumption levels across different regions of the country. Average real consumption expenditure per capita is 3021 USD for households during the study period, real urban consumption expenditures are on average 25 percent higher than rural consumption expenditures as shown in table 2. There are statistically significant differences in the non-food share of expenditures, which is 4 percentage points higher in urban areas relative to rural areas.

4 Evaluating The Impact of Tourism

Rapid growth has been a key feature of the global tourism industry over the last two decades. The United Nations World Tourism Organization (UNWTO) estimates that the number of global travelers has increased from roughly 700 million 25 years ago to 1.3 billion in 2024 (World Tourism Organization 2024). According to the World Travel and Tourism Council, tourism made up roughly 10% of global GDP in 2019, accounting for 25% of all new jobs created worldwide (World Tourism Organization 2023). Following the COVID-19 pan-

¹⁶In 2024, visitors to Jamaica on average spent 61.1 percent of their total vacation expenditure on accommodations and food provided by their accommodations, 2.91 percent on outside food and beverage, 3.4 percent on shopping and 12.7 percent on entertainment (Jamaican Ministry of Tourism 2025). On the other hand in Barcelona in 2023, accommodations comprised 47 percent of daily expenses, while food, attractions, and shopping comprised 45 percent. Source: <https://observatoritourisme.barcelona/xifres-clau/>.

demic which saw the collapse of the industry, the global tourism sector rebounded to 80% of pre-pandemic levels in the first quarter of 2023, with roughly 235 million people traveling internationally; more than double the number during the same period in 2022 ([World Tourism Organization 2023](#)).

Tourism has a number of qualities that make it an attractive sector in which to specialize for a developing country. It is an excellent source of foreign exchange and as a labor-intensive sector it is capable of absorbing a large number of unskilled workers ([Nayyar et al. 2021](#)). However, tourism is also characterized by a lack of linkages to other sectors and low scope for productivity growth ([Nayyar et al. 2021](#)), critical characteristics of industries that produce economic growth.

The Jamaican government’s goals for developing the tourism sector are outlined in the “Vision2030” national development plan. The first three goals are that Jamaican tourism is “inclusive and facilitates broad participation by Jamaica”, that the industry has “An adequate workforce within the sector that is skilled, educated and motivated”, and finally that tourism is “A highly integrated sector which can act as a driver for economic development”. A common criticism of tourism in Jamaica and other developing countries is that it is an exploitative industry that has little connection with the local populations ([Çiftçi et al. 2007](#); [Issa and Jayawardena 2003](#); [Issa and Jayawardena 2003](#)). It is therefore useful to understand the conditions under which positive tourism shocks raise local consumption levels. The criticisms of tourism’s effects on local communities thus share similarities with criticism of natural resource ventures in poor communities.

In this paper, we can consider a positive tourism shock to an area of Jamaica as an increase in the demand for local tourism services. The theoretical framework of [Moretti \(2010\)](#) interprets this as a sudden increase in labor demanded by tourist accommodations, and predict that this produces an increase in employment in the local tourism sector. These studies also predict that there will be increases in earnings for workers in the industry experiencing the demand shock, assuming that labor is mobile between sectors, and that there is imperfect labor mobility between regions. They predict that the extent to which workers in other sectors benefit depends on the same factors and if the sector is tradable or not. Specifically they predict the local non-traded sector will benefit, while the effects are unclear for the tradable sector.

The largest share of the Jamaican labor force, roughly 83 percent, is employed in skill-level 1 or 2 occupations.¹⁷ Among tourism related activities¹⁸, low and mid-skilled occupations make up 82.3 percent.¹⁹ Given that these occupations do not require more than a secondary level of schooling ([International Labour Office 2012](#)), and comprise up the largest share of occupations across Jamaica’s sectors it is reasonable to expect that Jamaican workers are largely mobile between tourism industries and other segments of the economy. This mobility implies that a positive shock to tourism may result in significant spillovers for a wide swath of the labor force in a particular locality.

What can be said about the geographic mobility of Jamaican workers? As in many developing countries,

¹⁷Source: Calculations based on 2001-2021 Jamaica Survey of Living Conditions

¹⁸The Statistical Institute of Jamaica defines tourism related activities as sectors that heavily participate in the tourism industry such as Hotels & Accommodations, Transportation and Logistics, etc

¹⁹Source: Calculations based on 2001-2021 Jamaica Survey of Living Conditions Surveys

there has been considerable movement within Jamaica over the previous 2 decades from rural areas in the country’s interior and south to urban centers. This has been driven by the familiar factors of rural poverty and the expectation of better job opportunities in urban centers. A large portion of this migration has been attributed to the development of tourism. According to the 2022 census, the fastest growing Parishes during the period 2011-2022 were St. James, Westmoreland, Hanover, and Trelawny, which are also major hubs of Jamaica’s tourism industry. While this migration has been considerable, it has been on average much slower than the growth of Jamaica’s tourism industry. This suggests that while there is some mobility for Jamaican workers, there still remain significant frictions. One potential friction may be concerns about crime, as well as difficulties with procuring suitable housing as urban areas struggle to update their infrastructure.

What would be the effects of an influx of new residents into a development area in response to a labor demand shock? The new arrivals would generate an increase in demand for local services as well as housing. This may also produce an increase in the prices of local services. Such an increase in the size of the local labor force would also put downward pressure on wages as a result of an increase in the local labor supply. Whether these shocks also raise *real* consumption depend on the relative magnitudes of the changes in nominal earnings and changes in cost of local goods and services (Moretti 2010; Aragón and Rud 2013; Allen et al. 2021; Almagro and Domínguez-Iino 2025). In the case of Barcelona, Allen et al. (2021) show that while on average tourism lowers the welfare of Barcelona’s residents because of increases in cost of living, there is significant heterogeneity in which residents have worse outcomes. In the Jamaican setting, owing to tourists being more segmented from the local population compared to urban styles of tourism like in Barcelona, I do not expect a significant effect of tourism on local food prices. I also would not expect there to be a significant short or medium-run effect on rent as a result of an increase in area tourism earnings. Unlike settings like Amsterdam where a large share of tourists stay in short-term rentals in close proximity to residents, in Jamaica (as in other developing country contexts), tourists have overwhelmingly stayed in resorts, hotels, and resort-villas as table 20 shows.

The occupations and skill-levels that benefit are predicted to depend on the skill-makeups of the industries most-impacted by the demand shock. In the Peruvian case, low-skilled workers were the ones to benefit as the mine demanded inputs from labor-intensive low-skill industries (Moretti 2010). Skill level 1 and 2 occupations make up the majority of Jamaica’s tourism workforce and also form a majority of the workforce overall, so in the Jamaican case, it would seem those groups are those that would be predicted to benefit most. What does the literature imply influences which segments of the expenditure distribution will benefit most? Because those in the lowest quartile of the consumption distribution are disproportionately likely to be in the lower 2 skill-level occupations, and because these constitute the majority of positions in the tourism industry, it is reasonable to expect that households in the first quartile would benefit most from increased tourism.

5 Data

At the heart of this analysis are two uniquely rich and informative datasets: Jamaican Ministry of Tourism exit surveys of departing visitors, and nationally representative household expenditure surveys. The MOT administers these surveys each month to a random sample of tourists leaving through either of Jamaica’s two main international airports. The exit survey provides an incredibly detailed picture of tourist demographics, spending across more than twenty sub-categories, and critically, the names of the hotels or hotel-like accommodations²⁰ in which a party stayed.²¹ Therefore, from these datasets spanning more than two decades, we can observe a remarkably thorough cross-section of the choices of stopover arrivals in Jamaica. From these surveys I am able to link accommodation spending by tourists to specific Jamaican municipalities based on the location of the hotels in which they stay. Utilizing publicly available aggregate arrival data, I am thus able estimate what share of tourists choose to stay in particular areas of the country, the amount of spending on accommodations within these localities, and the relative contribution to local tourism revenues by tourists from different regions of origin in a given year. These exit surveys present a comprehensive picture of the spending behavior of stopover arrivals to Jamaica, the primary source of revenue for the Jamaican tourism sector. For the study period I construct a repeated cross-section with roughly 80,000 travel parties and 150,000 individuals.²²

I then pair this tourism dataset with an equally informative set of household data coming from the Jamaica Survey of Living Conditions(JSLC). The JSLC is an annual Living Standards and Measurement(LSMS)-style survey conducted on a representative sample of the Jamaican population. It is administered by the Statistical Institute of Jamaica (STATIN). The JSLC uses a two-stage stratified random sampling design. The modules cover a wide range of topics related to household well-being, such as expenditure across different types of consumption, education levels, health, and labor force participation. In most years there are around 2000 households surveyed, which results in around 6000 individuals being included in the sample, or about 0.3 percent of the Jamaican population. I construct a repeated cross-section of 30680 households, representing 98883 individuals. The data covers the years 2001-2004, 2006, 2008-2011, 2013-2014, 2016-2019 and 2021.

In order to support findings from the baseline repeated cross-section specification, I also construct an unbalanced panel from a subset of the Jamaica Survey of Living Condition data following the methodology used by [Handa \(2007\)](#) to analyze household movement across the income distribution. Prior to 2018 the JSLC would occasionally re-sample households from previous years when the same sampling frame was employed. On average about half of the households in one year may have been re-sampled. This the case for the years 2002-2003, 2004-2007, 2008-2010, 2013-2014, and 2015-2016. Following the [Handa \(2007\)](#) methodology, I am able to construct an unbalanced panel of approximately 6000 Jamaican households representing some 30,000

²⁰Hotel-like accommodations include resort villas, guesthouses, and resort-apartments.

²¹The exit surveys ask a thorough set of demographic and spending questions. Demographic information includes, country and state/province of origin, the number of people in a travel party, their reason for visiting, length of stay, income expenditure band. Spending questions include, the amount spent on rooms in a hotel and the amount spent on hotel food. They also ask the amount spent on groceries, transportation, restaurants outside the hotel, and attractions.

²²I scale the estimates of local tourist accommodation expenditures by publicly available aggregate tourism statistics published by the Ministry of Tourism obtained from the customs forms filled out by arriving tourists.

individuals.²³

I make use of administrative shapefiles for the 2001 and 2011 censuses to link touristic activity and households across space. The shapefiles provides the boundaries of the 86 ‘development areas’ and 5776 enumeration districts into which STATIN divides the country for data collection and analysis. Development area boundaries are designed to encompass municipalities with similar economic and social characteristics.²⁴ Therefore, they represent a useful level at which to estimate variation in tourism activity. Development areas include both urban centers as well as rural hinterlands, as can be seen in figure 3, showing the Greater Montego Bay development area and its urban and rural sub-districts.

Sampling for the census occurs at the level of the enumeration district. The district boundaries for each census are maintained for the following decade until the next census. While for the 2001 census I do not observe development areas, I am able to achieve spatial consistency by taking advantage of the enumeration district boundaries. For years prior to 2011, I overlay 2011 development area boundaries on 2001 enumeration districts in order to obtain consistent spatial units.²⁵ I aggregate some neighboring development areas into one unit if one or both have only low to moderate tourism levels.

6 Empirical Approach

The structural equation describing the relationship that we wish to estimate is given below. In this equation, y_{it} represents per-capita expenditures for household i , in development area d in year t . The term $Tourism_{dt}$ represents total tourist accommodation expenditures²⁶ in the development area d for the same period, X_{idt} is a vector of household characteristics, and α is a constant and ϵ_{idt} is an idiosyncratic error term. The equation is the following:

$$Y_{idt} = \alpha + \beta Tourism_{dt} + \psi X_{idt} + \gamma_t + \lambda_d + \epsilon_{idt}. \quad (1)$$

The earlier predictions from the literature serve as useful guides for the empirically analyzing the effects of tourism on household welfare for Jamaican communities. The characteristics of the Jamaican tourism sector and labor force, and insights from studies analyzing the effects of local economic shocks (Moretti 2010; Allen et al. 2021; Aragón and Rud 2013), inform four testable hypotheses for this analysis.

²³Analysis by Handa (2007) showed that the full-sample of households in the JSLC and the panel sub-sample do not exhibit statistically significant differences in poverty rates, providing further confidence that these two datasets are statistically equivalent.

²⁴The Social Development Commission describes a Development Area (DA) as “a grouping of communities based on geographic, demographic, economic, and social criteria/commonalities. The DA has the potential for growth to satisfy the needs of the people. The DA has a centre or hub to which people gravitate for socio-economic activities. The DA is usually given the name of the community which is the hub of activities for that area.”

²⁵If an enumeration district is not wholly contained within a particular development area, I assign the households in that district to the development area where the largest share of the district is located.

²⁶I choose to estimate tourism intensity with only accommodations expenditures because I can guarantee that this expenditure was spent on services received within a given development area. On the other hand, expenditures on restaurants outside the hotels, clothing, attraction, etc may have occurred in other localities.

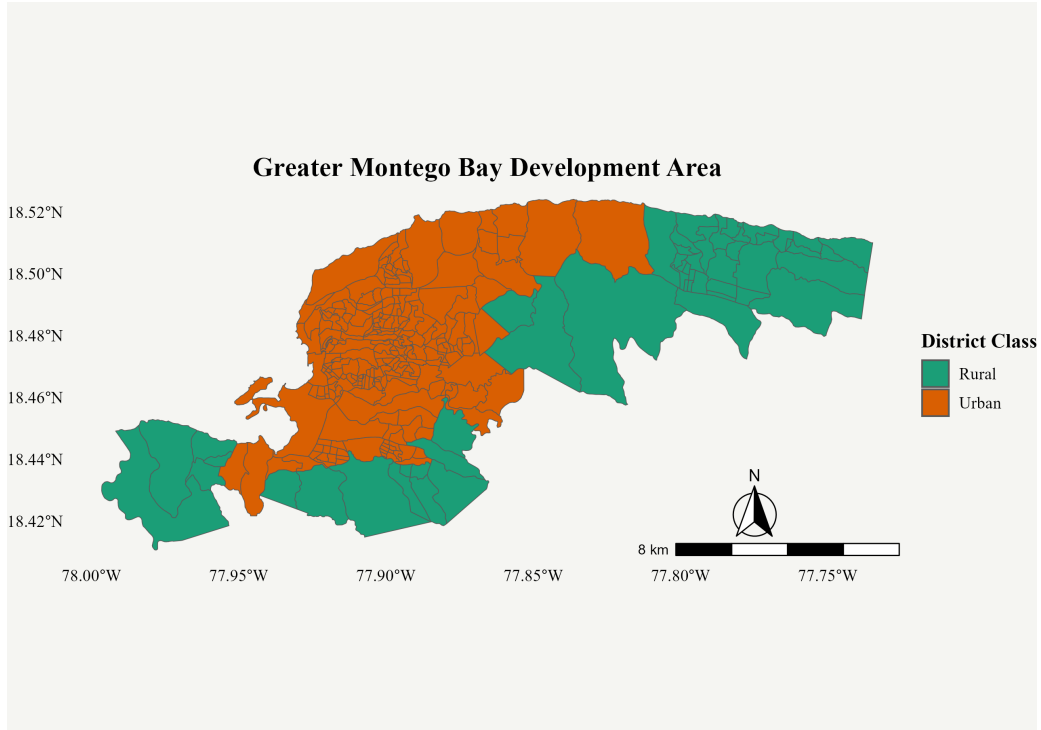


Figure 3: Greater Montego Bay Development Area

Notes: Urban enumeration districts are shaded in orange, while rural enumeration districts are shaded in green.

- H1: Increases in development area tourist expenditures will result in an increase in real per-capita consumption for households in that development area.
- H2: The increase in real per-capita consumption is greater for households employed in tourism related industries than for those employed in other sectors.
- H3: Households in low and mid-skilled occupations will experience the largest increase in real consumption.
- H4: The benefits of increases in tourism activity will accrue primarily to those in the 1st quartile of the per-capita expenditure distribution.

As development areas are collections of economically linked communities, hypothesis one predicts that an influx of tourists to a particular development area d will result in higher real consumption levels for d 's households relative to households in areas that do not experience an increase in tourism revenues. The prediction of hypothesis two stems from the fact that an increase in tourism revenue for a development area should increase the tourism industry's demand for labor and increasing wages within the sector (Moretti 2010). We would also expect there to be a smaller increase in real-consumption for households employed in non-tourism industries like non-tourism services and manufacturing. The size of this increase would depend on factors such as increased demand-side competition in the labor market resulting in higher wages, the level of the increase in consumption of local goods and services by households owing to greater earnings, and the strength of back-

linkages between tourism and other sectors. The prediction of the third hypothesis that low to mid-skilled workers will benefit most from a tourism demand is informed by the fact that households in these occupation classes make up the largest share of tourism workers. Similarly, low and mid-skilled workers are also relatively more likely than high-skilled workers to fall within the first consumption quartile, thus hypothesis four predicts that we will see the greatest increase in real consumption among households in that segment of the consumption distribution.

6.1 The Shift-Share Instrumental Variable Approach

The level of tourism in a given development area is not however, random, and it is therefore likely that $Tourism_{dt}$ is correlated with our error term. For example, areas that have higher levels of tourism revenue may also have qualities that attract more affluent households to live there, or that lead to better economic outcomes for locals. The endogeneity of $Tourism_{dt}$ motivates the use of a shift-share instrumental variable (SSIV) that will provide variation that is orthogonal to the attributes of the municipality that may influence household welfare.

This study joins an extensive set of research that employs shift-share instrumental variable (SSIV) identification strategies to correct for endogeneity. Since being first introduced in [Bartik \(1991\)](#) in a study of the growth rate of employment in specific sectors, SSIVs have proven extremely versatile in a variety of areas, including trade and labor ([Autor et al. 2013](#); [Hummels et al. 2014](#)), health ([Miguel and Kremer 2004](#)), migration and labor market outcomes ([Card 2009](#)), and the welfare impacts of location classification ([Diamond 2016](#)).

In constructing and evaluating the SSIV I adapt the strategy of [Allen et al. \(2021\)](#), in the study, exploiting variation in which tourists from certain regions of origin choose to stay in Jamaica and how much they spend. The identification strategy of this paper follows the exogenous shock-based approach [Borusyak et al. \(2022\)](#), as opposed to the exogenous share-based approach ([Goldsmith-Pinkham et al. 2020](#)). Several papers in recent years have suggested detailed guidelines to ensure accurate shift-share inference in the presence of exogenous shocks, and specifically for this case a panel of exogenous shocks ([Borusyak et al. 2022](#); [Borusyak et al. 2024](#); [Borusyak et al. 2024](#); [Adão et al. 2019](#)). Regarding accurate calculation of standard errors in SSIV designs, [Borusyak et al. \(2024\)](#) and [Adão et al. \(2019\)](#) develop techniques to calculate standard errors that account for the correlation in the residuals of units exposed to similar shocks. In their paper, [Adão et al. \(2019\)](#) demonstrate that failure to account for residual correlations can lead to over-rejection of the null hypothesis. I utilize their approach in order to adjust the standard errors for correlation in the shocks and include these regressions in appendix [A.1](#).

In the shift share equation, $g_1, \dots, g_k$ represent shocks common to all units, while $s_{i1}, \dots, s_{ik}$ are the ex-

posure shares that vary across units. A shift-share instrumental variable takes the form:

$$z_i = \sum_{k=1}^K \underbrace{s_{ik}}_{\text{Share}} \underbrace{g_k}_{\text{Shift}}, \quad (2)$$

with the final instrument z_i being a share-weighted average of the shifts.

This shift-share instrumental variable identification strategy is best motivated through the logic of a shift-level idealized experiment. We can consider a hypothetical experiment in which we address the unobserved variables in development areas d that are likely to bias an ordinary least squares estimation of 1. Imagine that we implement a lottery that in each year randomly selects a certain number T of tourists from specific sending regions r to receive free flights to Jamaica. We are able to dictate that only people who are invited to Jamaica via the lottery are able to visit, thus the aggregate number of tourists visiting Jamaica T , and the number from each sending region T_r is determined entirely via the lottery. We can expect that regions from which a larger number of people are selected are likely to have more visitors to Jamaica relative to regions for which there are less awardees. Visitors then decide where on the island to stay, and the amount they spend on accommodations and other goods or services. Thus, only the number of tourists from each sending region is randomly determined. Because of this random assignment of awards, the shifts from year to year in the total spending on accommodations by tourists from specific sending regions g_{rt} , are unrelated to development area d attributes such as beach quality that may influence our household outcome variables of interest y_{idt} .

Our goal is to approximate the experimental ideal explained above with existing variation in the data. I exploit two facts about tourism in Jamaica to proxy for ideal shifts and achieve identification. The first is that tourists from different regions of origin vary both cross-sectionally and over time in the areas of Jamaica they prefer to visit. The second is that tourists from different sending regions visit Jamaica in different magnitudes from year to year. The exposure share s_{drt} of each development area d to tourists from a sending region r in year t is the fraction of accommodation revenues in that development area earned from sending region r visitors. The shifts will be the changes in total accommodation spending by tourists from that sending region r in Jamaica overall. Jamaica’s main tourism markets are the United States, Canada, and the United Kingdom, with secondary markets including the Caribbean, Continental Europe, and Latin America. For the United States and Canada, the exit surveys also provide information on the states or provinces where tourists are visiting from. I divide tourist arrivals across seven regions given by the vector $r \in (\text{Northeast U.S., West U.S., Midwest U.S., South U.S., Canada, U.K. \& Europe, Other Countries})$.

How do we justify the argument that year-to-year variation in spending by tourists from specific sending regions is uncorrelated with the error term? First, we can note that over the period 2000 to 2021 there was substantial year-to-year variation in aggregate arrivals from these regions as well as variation in where members of these groups tended to visit in Jamaica. This variation is driven by a combination of changing local economic conditions in the origin regions, changes in access to Jamaica via available air routes, shifting

Total Annual Accommodation Expenditures In Jamaica and Contribution of Tourists From Different Regions 2000-2021

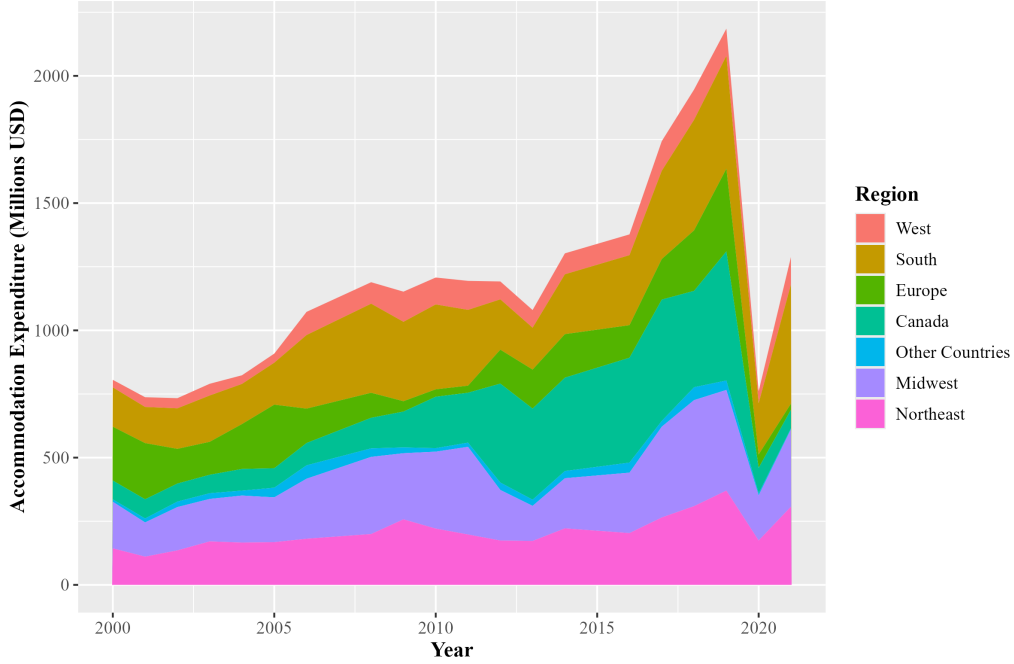


Figure 4: Level of Expenditures By Sending Region

Notes: Data comes from the Ministry of Tourism exit surveys. The contribution of tourists from various sending regions to total accommodations expenditures in Jamaica from 2000 to 2021 are shown. Expenditures are provided in 2024 Millions of U. Dollars.

preferences, and other potential factors. Some of this variation can be seen in figures 4 and 11.

Second, there was significant volatility in the global economy during the study period that was a result of geopolitical and economic events such as the September 11th terrorist attacks, the 2008 Global Financial Crisis, and the COVID-19 pandemic, among others. Decisions about whether or not to travel, and where to go are known to be influenced by factors such as inflation and debt crises (Khalid et al. 2020), risk preferences and demographics (Karl 2018), as well as the perceived distance between to a destination (Sirakaya and Woodside 2005). These shocks produced changes in travel and vacation patterns, and these changes may have differed depending on economic and political characteristics of particular regions of origin.

Thus, we obtain year-to-year variation in the arrivals of tourists from different regions of the world. Coupled with the differential levels of exposure of Jamaican development areas, these changes in sending region arrivals generates variation in local accommodations expenditures that is orthogonal to the characteristics of those localities that may influence the outcome variables of interest.

In the tourist region of origin based instrumental variable below $(g_1, \dots, g_k)$ are shifts that are common to all units (development areas). The vector $(s_{i1}, \dots, s_{iK})$ are the exposure shares that vary across units. The term $Tourism_{dt}$ represents total tourist accommodation spending in development area d , in year t . This is

equal to the sum of each region of origin r 's expenditure on accommodations in the development area in year $t : Tourism_{drt}$.

$$Tourism_{dt} = \sum_{r \in R} [Tourism_{drt}] \quad (3)$$

Area d 's exposure to region r tourists in year t is given by

$$s_{drt} = \frac{Tourism_{drt}}{\sum_r Tourism_{drt}} = \frac{Tourism_{drt}}{Tourism_{dt}} \quad (4)$$

With all development areas being a part of the set $\mathbf{D}$, total spending in Jamaica on accommodations by tourists from region r in year t is therefore:

$$T_{rt} = \sum_{d \in \mathbf{D}} [Tourism_{drt}]. \quad (5)$$

We can then define the “shift”, the change in total expenditures by tourists from region r between period $t = 1$ and period $t = 0$ as:

$$g_{r1} = \frac{Tourism_{r1} - Tourism_{r0}}{Tourism_{r0}}. \quad (6)$$

The shift-share instrument therefore is given by:

$$z_{dt} = \sum_{r \in R} s_{drt} \left[\frac{Tourism_{r1} - Tourism_{r0}}{Tourism_{r0}} \right] = \sum_{r \in R} s_{drt} g_{r1}. \quad (7)$$

The shifts are constructed using the “leave-one-out” construction. In this approach, discussed and employed throughout the shift-share literature ([Borusyak et al. 2022](#); [Goldsmith-Pinkham et al. 2020](#); [Autor et al. 2013](#)), the shift-share instrument is written:

$$z_{dt} = \sum_{r \in R} = \sum_{r \in R} s_{drt} g_{r1, -d}, \quad (8)$$

meaning the calculated change total spending in Jamaica by the region r tourists does not include group's change in spending for area d . This construction is meant to avoid bias in the instrument for area d potentially caused by including area d shifts. In their paper, [Autor and Duggan \(2003\)](#) show that including own-unit shifts could lead to a substantially stronger instrumental variable, though [Goldsmith-Pinkham et al. \(2020\)](#), show that the leave-out correction has a relatively minor effect when shifts average over many observations.

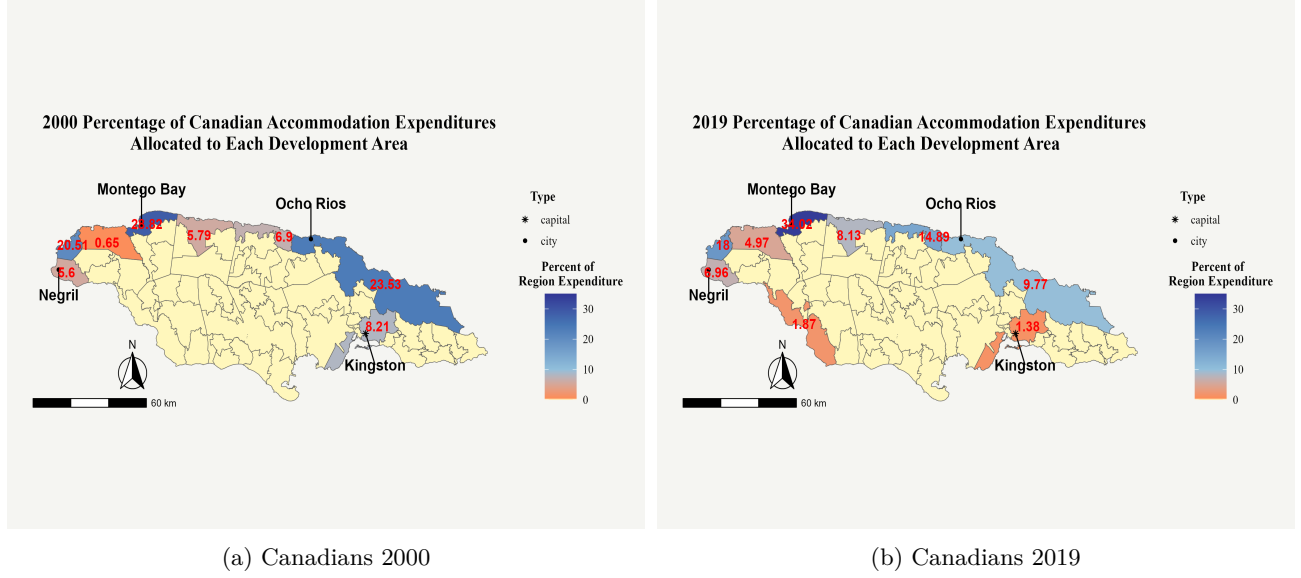


Figure 5: Variation Over 2 Decades In Spatial Distribution of Canadian Tourist Expenditures

Notes: Data comes from the Ministry of Tourism Exit Surveys. This graph shows the changes in the relative popularity of different Jamaican development areas with tourists from Canada between the years 2000 and 2019. The numbers show the share of total Canadian accommodations spending allocated to particular areas of Jamaica in different years. Yellow shading indicates there was no expenditure by Canadian tourists in that particular development area in a given year.

Over time tourists from different regions of origin have shifted the frequency with which they visit particular areas of Jamaica. For example in figures 5a and 5b we can see variation in which parts of the island Canadians preferred to visit between 2000 and 2019. I show the same figure but for tourists from the South-eastern United States in the appendix.

For the 2SLS specification, Y_{idt} will be either per-capita expenditure, or an indicator for poverty status (0: Above Poverty Line, 1: Below Poverty Line) for household i , in development area d , in year t , measured in both logs and levels. Tourism intensity is given by $Tourism_{dt}$, and is calculated as total expenditures on accommodations in a development area in a given year, Z_{dt} is the shift-share instrument, η_{idt} is an idiosyncratic error term for the first stage, and second stage terms are the same as stated in the structural equation.

Stage 1:

$$Tourism_{dt} = \chi + \phi Bartik_{dt} + \iota X_{idt} + \omega D_t + \pi C_d + \eta_{idt} \quad (9)$$

Stage 2:

$$Y_{idt} = \alpha + \beta Tourism_{dt} + \psi X_{idt} + \rho D_t + \lambda C_d + \epsilon_{idt}, \quad (10)$$

Within the vector of household controls X_{idt} is the number of members in a household, the sex of the household head, and whether or not the household is located in a rural enumeration district. As the identifying variation occurs at the development area level, and because I expect the residuals of households within the same development areas to be correlated, I cluster the standard errors at this level, also.

6.2 Identification Checks

The key identifying assumption in using this shift-share instrument is that year-to-year variation in the accommodations expenditures of tourists from specific regions of origin r visiting Jamaica are uncorrelated with unobserved characteristics of the development areas or the households within them that may impact our outcome variables of interest. That is, whatever factors are driving the changes in spending by different tourist groups, and/or their decision of where they choose to spend their vacations in Jamaica, are not correlated with the unobserved characteristics of households and development areas I observe. Formally this can be represented as

$$\mathbb{E}[Z_{dt}\epsilon_{idt}] = 0 \quad (11)$$

In order for the instrument to be valid it must satisfy relevance and the exclusion restriction. The first stage regressions for the baseline findings show that instrument functions well with a first-stage of 29 for the specification including all controls and dummy variables. This strength is also reflected in graphs of the correlations shown in the appendix.

In order to satisfy the exclusion restriction the instrument must only affect household welfare through tourist expenditures on accommodations conditional on controls. This would be violated if the instrumental variable impacts per-capita expenditures through channels such as cost of living. For example, the instrument may also be correlated with higher per-capita expenditures through its effect on the prices of locally produced services as a result of tourist spending in the community. To account for such a channel I inflate or deflate expenditures according to Jamaican regional price indices. As I also normalize all expenditures to 2024 US dollars, the expenditure outcome variables capture real per-capita spending behavior and should not reflect price changes induced by local tourism activity.

I also use an Instrumental Variable Quantile Regressions (IVQR) to more precisely estimate effects of shocks to development areas for household's across the expenditure distribution. Given that the main dataset is a repeated cross-section, the decile within which a household falls is likely endogenous, IVQR provides a more accurate representation of the distributional impacts of the tourism shocks. I utilize the method based on [Kaplan and Sun \(2017\)](#), and perform the regressions with the associated SIVQR command in Stata ([Kaplan 2023](#)). Because this method utilizes a distance minimization technique that requires a sufficient number of observations for each quantile conditional on controls and dummy variables, I am unable to estimate the quantile regression with the full set of right hand side variables from the 2SLS specification. Instead, I employ dummy variables for each of Jamaica's 14 parishes, and a dummy variable indicating whether the observation is before or after the year 2010.

6.3 Interpreting Beta

It is beneficial for us to now consider the possible implications of migration on our interpretation of β . We may be concerned that β captures the effects of both existing local populations as well as Jamaicans who migrate to an area in response to the labor demand shock. We may also be concerned that the effects of tourism earnings are not captured in cases where a worker migrates from a rural area or a community with no tourism and then uses earnings from tourism to provide for family in that non-tourism producing locality. This would imply that $Tourism_{ct}$ variable for a the non-tourism producing area c is understated. Therefore, $\hat{\beta}$ would be attenuated by this under counting of development area tourism revenues. We can thus interpret the estimates of β as a lower-bound on the true effect of tourism revenues on households.

6.4 Shift-Share Instrument Diagnostics

One concern when employing a shift-share instrumental variable identification strategy is that we do not appropriately account for correlation between the shocks (Borusyak et al. 2024; Adão et al. 2019). Valid inference must account for the fact similar units, d , with similar shares s_{dr} , may have correlated ϵ_d . In this setting, such correlation may arise if development areas that cater to tourists from the same sending regions are exposed to the same unobserved sending region shocks. This can then lead to over-rejection of a true null hypothesis as shown by Adão et al. (2019). In their paper, Adão et al. (2019) also introduce a variance estimator that corrects for this potential over-rejection problem.²⁷ I correct my baseline estimates with their approach and there is no significant change in the findings I obtain. I show a comparison of my main estimates with different standard error approaches in table 13 in appendix A.2.

Another concern for shift-share inference when working with panels of units is the potential for correlation in the shocks across periods. If such correlation is present, then past shifts may influence present shares and the outcome variable. If this is not accounted for, then the estimation will suffer from omitted variable bias and cannot be viewed as a valid natural experiment. One way to correct for this is to extract the idiosyncratic component of each shock before constructing the instrument Borusyak et al. (2024). I regress each sending region shock on the interaction of region and development area controls, and then use the residuals as the new shocks in calculating the shift-share instrument. Graphs comparing the two versions of the shocks are available in appendix A.1. The final shift-share instrument and the endogenous regressor are shown in figure 6.

7 Results

I now present the main findings of the analysis, guided by the four testable hypotheses drawn from the context and literature. I first describe the baseline findings along with results for the analysis of outcomes related to household well-being. The following section will present results related to the effects of tourism on various

²⁷The estimator of Adão et al. (2019) is asymptotically valid no matter the correlation of errors across observations under the condition that shocks are mutually uncorrelated. That is, $g_r \not\sim g_s$.

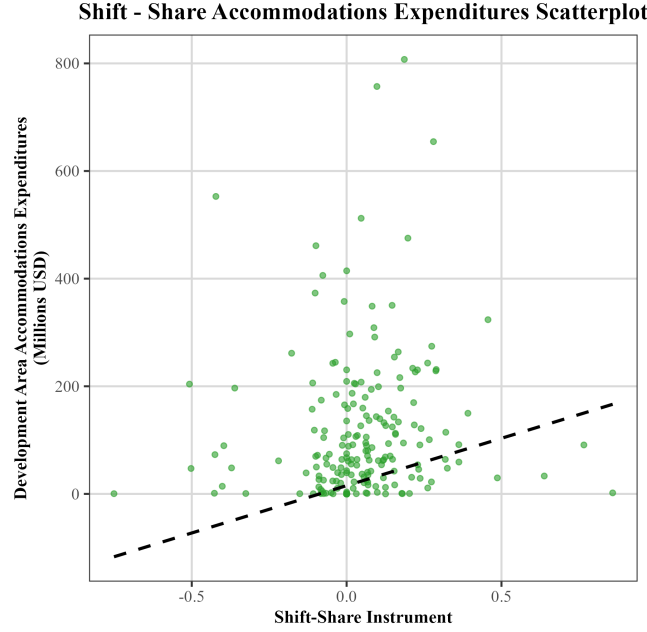


Figure 6: **Scatterplot of the Shift-Share IV and Tourist Accommodation Spending**

This scatterplot show the relationship between the shift-share instrumental variable and the endogenous regressor: Development Area-level accommodations revenues.

segments of the labor force. I will then present results of the quantile regression describing the impacts of tourism across the household expenditure distribution. Finally I will analyze the results of regressions evaluating the plausibility of alternative explanations.

7.1 Baseline Findings and Welfare Outcomes

Table 3 displays findings for regressions addressing the foundational question of whether or not increases in tourism revenues produce real increases in per-capita consumption for local households. Log per-capita expenditure is the outcome variable for these regressions. The regression results are separated by whether households reside in an urban sub-district or a rural sub-district. The F-Statistic for the urban sample regression is the strongest at 70, followed by the full sample F-Statistic at 53, and the rural F-Statistic of 22. The coefficient on tourism expenditures for the urban sample 0.027, and is statistically significant at the 1 percent level.

The log-level specification of the regression implies that an increase of ten million U.S. dollars in real development area tourism revenues increases real per-capita expenditures by 2.7 percent for households in the development area relative to households in areas that do not receive this shock. There is no statistically significant effect of increased tourism earnings on rural households, as is shown in column 2. Though the first stage of the rural regression is relatively weak, the full-sample regression in column 3 lends support to the results from column 2, given the stronger full-sample first stage. The coefficient on tourism expenditures is again insignificant for the regression utilizing the entire sample.

Is the effect for urban households economically significant within the context of Jamaica? This depends

Table 3: IV: Relationship Between Tourism Earnings and Log Per-Capita Household Expenditure

	Annual Log Per-Capita Expenditure		
	Urban Areas (1)	Rural Areas (2)	Rural and Urban (3)
Panel A: Second Stage			
Tourism Expenditure (Tens of Millions USD)	0.027*** (0.005) [.01429, .03908]	-0.003 (0.010) [-0.024,0.017]	0.011 (0.007) [-0.003,0.026]
Observations	11447	19163	30610
Number of Clusters	34	57	59
Bootstrapped Hypothesis Test	Yes	No	No
Panel B: First Stage			
Shift-Share Instrument	11.889*** (1.418) [9.109,14.668]	11.882*** (2.544) [6.896,16.868]	11.920*** (1.633) [8.719,15.122]
First-Stage F-Statistic	70	22	53
Observations	11447	19163	30610

Notes: Each result above includes the coefficient estimate, followed by the standard error in parentheses, and finally the 95% confidence interval corrected with a wild bootstrap if the number of clusters is under 45. All regressions include a vector of household controls, development area dummies and year dummies. Tourist Expenditures are calculated at the development area level in tens of millions of 2024 U.S. Dollars. Household expenditures are inflated or deflated based on Jamaican regional price indexes to obtain real consumption levels across different parts of the country. All shift-share instrument shock components are demeaned to extract the idiosyncratic component of the shocks.

in part on the typical magnitude of the variation in development area tourism expenditures. The median change in tourism levels for a development area from one year to the next is 7.92 million U.S. dollars, and over the course of 5 years is 31.06 million U.S. dollars.²⁸ Therefore, the median development area in Jamaica should see increases in tourism activity raising per-capita consumption levels by 2.1 percent on average. Over the course of a 5-year period, increases in local tourism intensity would produce an 8.3 percent increase in real per-capita expenditures on average for households in the area. In dollar terms, the average urban household's annual per-capita consumption expenditure increases by 97 U.S. dollars as a result of an increase in 10 million U.S. dollars in tourism earnings for the development area. This can be compared against the average growth of GDP per capita in Jamaica over the period of this study period of .2 percent. The first hypothesis that greater tourism earnings generate greater consumption is shown to be true, but only for urban Jamaicans.

Considering only the changes in real per-capita expenditures as the outcomes of interest may result in the analysis inaccurately capturing variation in household welfare, the main outcome of focus for this work. In order to more holistically capture household well-being and living conditions, I replicate the baseline regressions with disaggregated expenditure categories as the left-hand-side variables. The first three regressions consider food, non-food, and non-consumption expenditures. The fourth, fifth, and sixth regressions deal with three important categories of household well-being: Health, human-capital investments, and financial security. Together these regressions provide a more complete picture of how consumption is changing, and can provide additional insight on the extent to which these observed findings can be interpreted as changes in household well-being.

Table 4's first and second columns show that for urban households the coefficient on tourism expenditures is positive and statistically significant for real food and non-food consumption. The coefficient in the food regression is significant at the .1 percent level, the coefficient for the non-food regression is significant at the 5 percent level. In terms of magnitude, individual food expenditures increase by 2.3 percent on average per 10 million dollars in area tourism revenues, while individual non-food expenditures increase by 2.9 percent on average. The difference between these coefficients is not statistically significant, altogether indicating that growth in local tourism revenues produces equivalent percentage increases in real food and non-food spending by locals.

Though the percentages are statistically equivalent, the value of the increases in real-spending are not equivalent for each of these categories. Since the average per-capita annual food expenditure for urban households is 1613 U.S. Dollars, and is 1900 for non-food expenditure, the dollar value of the increased expenditures is 37 dollars for food, and 57 dollars for non-food goods. Approximately 61 percent of the increase in average consumption is spent by households on non-food items, indicating that exposed households use much of their additional consumption to spend beyond basic food items. Column 3 of table 4 shows that there is no

²⁸Source: Based on calculations from the Ministry of Tourism exit survey. See table 21 in appendix A.5 for selected summary statistics on year to year variations in tourism.

Table 4: IV- Effect of Tourism On Selected Measures of Household Well-Being -Urban Households

	Log-Expenditure Outcomes			Level Welfare Outcomes		
	Log Per-Capita Food (1)	Log Per-Capita Non-Food (2)	Log Per-Capita Non-Consumption (3)	Per-Capita Healthcare (4)	Per-Capita Education (5)	Loan Repayment (6)
Tourism Expenditure (Tens of Millions USD)	0.023*** (0.003) [.01853, .02983]	0.029** (0.010) [.003635, .05586]	0.023 (0.033) [.08037, .0884]	19.770** (5.656) [4.143, 35.02]	-1.443 (4.498) [11.94, 11.29]	24.393 (9.746) [7.233, 43]
First-Stage F-Statistic	70	72	77	70	70	71
Observations	11438	11432	7217	10599	10599	6951

Notes: Each result above includes the coefficient estimate, followed by the standard error in parentheses, and finally the 95 percent confidence interval corrected with a wild bootstrap. All regressions include a vector of household controls, development area dummies and year dummies. Tourist Expenditures are calculated at the development area level in tens of millions of 2024 U.S. Dollars. Household expenditures are inflated or deflated based on Jamaican regional price indexes to obtain real consumption levels across different parts of the country. All shift-share instrument shock components are demeaned to extract the idiosyncratic component of the shocks.

Table 5: IV: Relationship Between Household Poverty and Development Area Tourism Revenues

	Likelihood of Household Being Below the Poverty Line		
	Urban (1)	Rural (2)	Full Sample (3)
Tourism Expenditure (Tens of Millions USD)	-0.006** (0.002) [-0.010, -0.002]	0.002 (0.004) [-0.008, 0.011]	-0.002 (0.002) [-0.007, 0.003]
First-Stage F-Statistic	70	22	53
Observations	11448	19164	30612

Notes: The outcome is a binary variable that takes a value of 1 if a household is below the poverty line and 0 otherwise. Each result above includes the coefficient estimate, followed by the standard error in parentheses, and finally the 95% confidence interval corrected with a wild bootstrap if the number of clusters is under 45 as is the case for the urban sample. All regressions include a vector of household controls, development area dummies and year dummies. Tourist Expenditures are calculated at the development area level in tens of millions of 2024 U.S. Dollars. Household expenditures are inflated or deflated based on Jamaican regional price indexes to obtain real consumption levels across different parts of the country. All shift-share instrument shock components are demeaned to extract the idiosyncratic component of the shocks. *** p<0.01, ** p<0.05, * p<0.1.

change on average in per-capita non-consumption expenditures resulting from increased tourism activity.

The fourth column of table 4 uses per-capita expenditure on medical services and products as the outcome variable. An increase of 10 million U.S. Dollars in tourism receipts for an area raises real expenditure on health goods and services by 19 U.S. dollars for Jamaicans in urban sub-districts. This is statistically significant at the 5 percent level. Columns 5 and 6 use per-capita expenditures on education goods and services, and annual household expenditures on loan repayments and interest payments, and the coefficients on tourism revenues for both are statistically insignificant. These results indicate the validity of the first testable hypotheses for urban contexts, and in particular suggest that tourism growth is improving the welfare of households in the immediate vicinity of tourist zones. Increased revenues result in higher real consumption levels for both food and non-food items, with the majority of this increased consumption going to non-food goods, and approximately one third of the increase in non-food expenditures being used by households to increase consumption of medical goods and services.

Table 5 shows that increased tourism earnings for a development area also reduces the likelihood of a household falling below the poverty line in that area, but once again this effect is only evidence for urban dwellers. An increase in tourism earnings of 10 million U.S. dollars results in a statistically significant .6 percent lower likelihood of an observed urban household being below the poverty line relative to other localities. Taken together with the results on individual consumption categories, these results partially support the first testable hypothesis: Local urban households do derive welfare benefits from increases in their community’s tourism levels, with real gains in consumption level, purchasing of health related services, and a lower likelihood of poverty. It is not clear, however, that these same benefits extend to rural households within the same development area. There are no observed changes in any categories of real consumption, or in the likelihood of poverty. At the same time, the shift-share instrumental variable is relatively weaker when evaluating the rural sample as a result of most rural households residing in areas of the country with little to no tourism. Therefore, the lack of effect of increased tourism earnings for rural households can be interpreted with some caution.

7.2 Heterogeneous Impacts In The Labor Force

The next two testable hypotheses addressed questions of which workers benefit from tourism shocks. In table 6, I present results based on whether or not a household is employed in a tourism related industry. In order to confirm the predictions on employment in the literature, in the first column I regress an indicator variable that takes a value of 1 if a household works in tourism industry on development area tourism earnings. as expected, the effects are positive and statistically significant. Columns 2 and 3 repeat the baseline regression but column 3 includes only the sample working in non-tourism industries, and column 3 is only made up of the sample of tourism workers. In contrast to the predictions of the 2nd testable hypothesis, only households in non-tourism sectors experience increases in real consumption levels as a result of the increase in tourism. The coefficient of 2.9 percent implies that the baseline findings are driven entirely by tourism non-tourism workers. Similarly for poverty, columns 4 and 5 reveal that the effects of tourism on poverty only occur for non-tourism workers. Thus while employment in tourism certainly increases, actual consumption levels do not appear to be increasing. The first-stage of the tourism worker sample regression is not as strong as that of the non-tourism sector in part because of fewer observations when limiting the sample to the tourism workforce alone. Thus it may be best to interpret these findings as confirming an effect in non-tourism sectors but being unable to confirm an effect within the tourism industry rather than as a definitive indication that tourism workers are not benefiting directly.

The third testable hypothesis predicts that because of the large share of low-skilled workers in the tourism sector, these worker will benefit the most from a positive shock to tourism in a community. Table 6 repeats the baseline regressions for separate samples of different occupations across the different skill-levels for urban households. The first column shows that for unskilled occupation there is actually no effect of tourism on annual real per-capita expenditures. These occupations require less than a secondary level of schooling. What

Table 6: IV - Results By Employment in Tourism Related Industries - Urban Households

	Employment	Real Log Per-Capita Expenditure		Likelihood of Being The Below Poverty Line	
	Likelihood of Employment in Tourism (1)	Non-Tourism Related Industry (2)	Tourism Related Industry (3)	Non-Tourism Related Industry (4)	Tourism Related Industry (5)
Tourism Expenditure (Tens of Millions USD)	0.010** (0.003) [0.003,0.016]	0.029*** (0.005) [0.018,0.040]	-0.010 (0.010) [-0.030,0.010]	-0.006** (0.002) [-0.009,-0.002]	-0.006 (0.004) [-0.014,0.003]
First-Stage F-Statistic	70	69	29	69	29
Observations	11448	10390	1057	10391	1057

Notes: The Tourism Industry outcome is binary variable with 1 indicating the household head or principal earner works in a tourism related industry and 0 indicating the individual works in a non-tourism related industry. The outcome for the likelihood of being below the poverty line is a binary variable that takes a value of 1 if a household is below the poverty line and 0 otherwise. Each result above includes the coefficient estimate, followed by the standard error in parentheses, and finally the 95% confidence interval corrected with a wild bootstrap if the number of clusters is under 45. All regressions include a vector of household controls, development area dummies and year dummies. Tourist Expenditures are calculated at the development area level in tens of millions of 2024 U.S. Dollars. Household expenditures are inflated or deflated based on Jamaican regional price indexes to obtain real consumption levels across different parts of the country. All shift-share instrument shock components are demeaned to extract the idiosyncratic component of the shocks. *** p<0.01, ** p<0.05, * p<0.1.

we can see is that it is actually occupations in the level 2 skill segment that are benefiting the most, namely, “Skilled Trades” and “Plant and Machine” operators who both see positive effects of tourism. There is no statistically significant effect for skilled agricultural jobs, which is consistent with the lack of observable findings for rural households. The skill level 3 and 4 occupations which are managers, professionals and similar types of positions also shows no statistically significant effect of tourism on per-capita expenditures in line with the expectations of the third testable hypothesis.

In general these findings suggest partial support for the labor force related hypotheses. These are also consistent with the earlier observed findings. On the one hand we can see that as expected in the literature, there are statistically significant effects on the real consumption levels of households in local service sectors, and there is in fact an effect in the tradable manufacturing sector. On the other hand, the lack of an observable effect for real consumption or poverty among the tourism labor force is at odds with the original hypothesis. This finding is particularly intriguing given the prediction that the greatest benefits would be experienced by tourism workers relative to workers in other sectors of the economy. According to [Moretti \(2010\)](#), the predicted increase in earnings for workers is contingent upon imperfect geographic labor mobility and perfect mobility of labor between sectors. A lack of an effect on tourism sector workers could suggest that tourism workers are not in fact mobile between sectors or have a relatively high level of geographic mobility. As a result of data limitations it is not possible for me to consider these mechanisms in the context of this study. The finding that skill-level 2 occupations are the ones that see the greatest increase in their consumption levels from an increase in tourism would, however, be consistent with a high level of sectoral mobility. This finding partially supports the third hypothesis regarding the occupations that would benefit from tourism, as unskilled occupations are shown to experience no increase in real consumption levels.

7.3 Heterogeneous Effects Across The Consumption Distribution

Finally, I present results on the question of where on the consumption distribution the benefits of tourism revenues accrue. The fourth testable hypothesis predicted that this effect would also operate through the

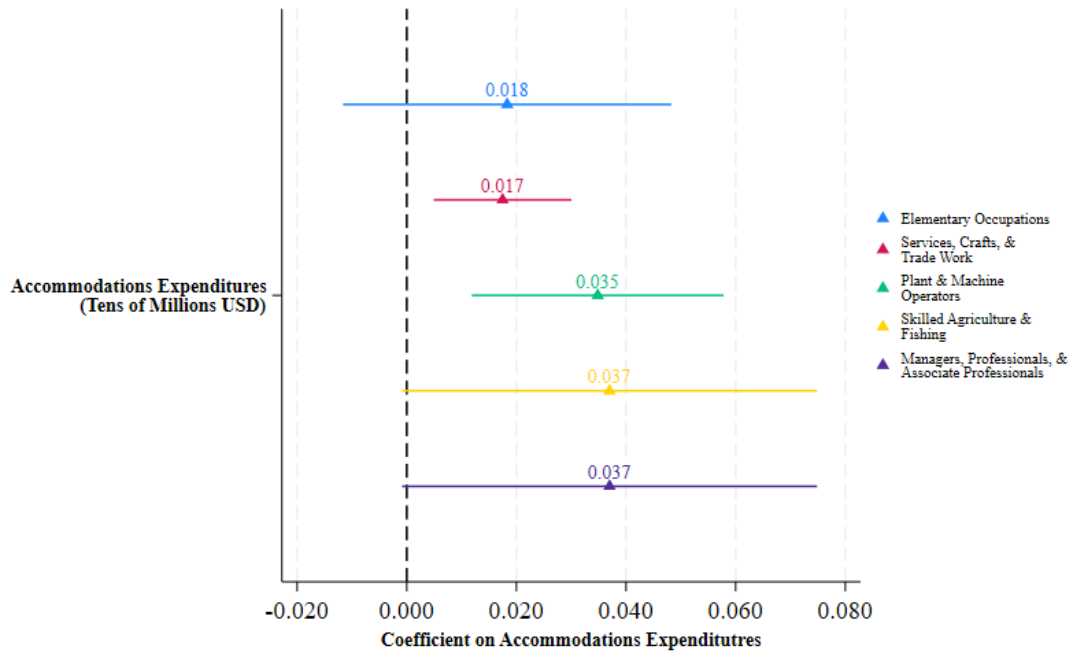


Figure 7: **Cross-Section Comparison of IV Coefficients Across Occupation Categories In Urban Areas**

Shown are the coefficients and 95 percent confidence intervals for the separate regressions of real per-capita household consumption expenditures on development area accommodations revenues for households in different occupations. Accommodations expenditures corrected for inflation to 2024 USD values.

skills distribution of the labor force. Because households working in tourism, and working in skill-level 1 and 2 occupations are disproportionately likely to be in the 1st quartile of the Jamaican expenditure distribution, greater tourism revenues are predicted to produce the greatest impacts on Jamaicans in the 1st quartile. considering the fact that the previous results could not confirm an effect on tourism sector workers, the accuracy of the fourth hypothesis is not necessarily as certain.

I test the fourth hypothesis using an Instrumental Variable Quantile Regression (IVQR). A quantile regression approach allows for a more reliable analysis differences in effects based on consumption than say, separating the sample by quartile and then conducting individual regressions for each quartile. The IVQR analysis for this paper follows the methodology of [Kaplan and Sun \(2017\)](#), using the associated SIVQR STATA package.²⁹ I once again use the urban sub-sample of the main repeated cross-section household dataset. IVQR uses a minimum distance procedure that is reliant on there being a sufficient number of observations in each quantile conditional on controls and dummy variables. The urban sample is not large enough to run the IV Quantile Regression approach when using the full set of baseline controls and dummy variables. As such, for the IV Quantile Regression analysis I limit the controls to the household size, the sex of the household head, and a binary variable indicating whether or not the year of the observation is less than or equal to 2010.

Table 7 presents the results for the analysis. It shows that among the urban sample, the lowest quartile of the expenditure distribution is where all of the statistically significant effects of increases in tourism are concentrated. This aligns with the fourth hypothesis, and aligns with the previous finding that positive tourism shocks reduced the likelihood of households being below the poverty line. We may also be concerned that since urban households are on average more affluent than rural households as shown in table 2, that many households in the first quartile of the urban distribution on average still be rather high on the national distribution when considering rural households. The upper bound for the first quartile of the urban household expenditure distribution is 2157.24 U.S. Dollars, which has the percentile value of 33.55 in the full expenditure distribution.³⁰

These findings indicate that though the urban households do consume more on average than rural households, the poorest quartile of urban households are overall still in the bottom third of the national expenditure distribution. Thus, the benefits of tourism primarily accrue to poorest third of Jamaican households. These outcomes align well with the goal of tourism growth generating welfare improvements for lower-income Jamaicans.

7.4 Robustness To Alternative Explanations

I now aim to provide plausible explanations for the mechanisms underlying these observed effects. In order to do this I employ the panel dataset. This does not allow for a one-to-one comparison of the findings because of limited observations, but it still can provide useful insight on the labor force and how it is affected by tourism

²⁹Source: [Kaplan \(2023\)](#)

³⁰Based on author's calculations from the Jamaica Survey of Living Conditions. See figure 16.

Table 7: IV: Quantile Regression of Log Per-Capita Consumption Expenditure on Tourist Accommodations Expenditures - Urban Households

	Per-Capita Expenditure Quantiles		
	25 (1)	50 (2)	75 (3)
Tourism Expenditure (Tens of Millions USD)	0.004*** (0.001) [0.002,0.006]	0.001 (0.001) [-0.001,0.004]	-0.001 (0.408) [-0.800,0.799]
Observations	11125	11125	11125
Smoothing Bandwidth	95	95	95

Notes: The results above show the coefficient estimates, standard errors in parentheses, and the 95 percent confident intervals in brackets. The above columns represent the coefficient estimates for the 25th, 50th, and 75th quantiles of the Log per-capita expenditure quantiles. Each regression includes a dummy variable indicating whether or not the year is less than or equal to 2010. The number of observations in each column is the overall number of urban households in the estimation sample, not the number of households in each quantile. *** p<0.01, ** p<0.05, * p<0.1. All values are provided in 2024 U.S. dollars.

booms. The panel regression is useful because it allows me to limit my regressions to household who are located in the same industry for each period in which they are observed. In contrast, the cross-sectional results in table 6 reflect the effects of tourism shocks on incumbent workers in an industry, as well as those who are newly hired. The panel regression also allows for comparison of the effects of tourism on households depending on the segment of the distribution in which they fall in the first period they are observed. This can provide a more precise view of where on the expenditure distribution households are experiencing the greatest improvements in consumption because of a tourism shock. Unfortunately, because the unbalanced panel has fewer observations than the cross-section in order to maintain statistical power in the first and second stages, I keep both urban and rural communities households as well as Kingston in this sample. Therefore, this is regression does not provide a one-to-one comparison with the main results of the paper, though I argue that its results can still be informative.

Table 8 displays the results of the fixed effects instrumental variable regression of annual real per-capita expenditures on development area tourism revenues, with disaggregations according to selected sectors and the quartiles in which households fall. The first column shows results for the regression using the full sample with all sectors and all quintiles. As expected, on average there is no effect for tourism revenues on household expenditures.

Columns 2-4 show results for households that work in either “Non-Tourism Services” or “Manufacturing” during all periods they are observed. Column 2 and column 4 present findings for the 1st and 4th quartiles, respectively, but both have weak first stages and it is therefore not possible to draw strong conclusions from them. Column 3 has a strong first stage and is the subset of households that who fall in the 2nd and 3rd expenditure quartiles during the first period that they are observed. For these households the coefficient on tourism earnings is 2.5 percent per 10 million dollar increase in revenues. This finding is significant at 0.001

Table 8: IV-Panel Per-Capita Consumption by Industry

	All Sectors	Non-Tourism Services & Manufacturing			Ever Employed in Tourism		
	All Quartiles	Quartile: 1	Quartiles: 2-3	Quartile: 4	Quartile: 1	Quartiles: 2-3	Quartile: 4
Tourism Expenditure (Tens of Millions USD)	-0.003 (0.007) [-0.017,0.011]	0.083** (0.038) [0.006,0.159]	0.025*** (0.008) [0.008,0.042]	-0.030* (0.015) [-0.061,0.000]	0.091** (0.041) [0.008,0.175]	0.020** (0.009) [0.002,0.038]	-0.022 (0.018) [-0.058,0.013]
First-Stage F-Statistic	26	8	64	13	11	59	13
Observations	6032	313	1133	713	225	826	543
Number of Clusters	58	45	53	45	39	46	38

Notes: Non-Tourism Services and Manufacturing observations are those households that are employed in either of those sectors for all periods they are observed. Ever Employed in Tourism is a sample of households that are employed in a tourism related industry for at least one of the periods in which they are observed. Each result above includes the coefficient estimate, followed by the standard error in parentheses. Regressions are separated by the initial quartile in which a household is observed. All regressions include a vector of household fixed effects and year fixed effects. Tourist Expenditures are calculated at the development area level in tens of millions of 2024 U.S. Dollars. Household expenditures are inflated or deflated based on Jamaican regional price indexes to obtain real consumption levels across different parts of the country. All shift-share instrument shock components are demeaned to extract the idiosyncratic component of the shocks. *** p<0.01, ** p<0.05, * p<0.1.

level.

The final three columns are regressions for households that work in tourism for at *at least* one of the periods in which they are observed. Once again, the regressions for the 1st and 4th quartiles in the 5th and 7th columns present with weak first stage results making serious interpretation difficult. Column 6 presents findings for households in either the 2nd or 3rd expenditure quartiles in their first period, and the coefficient is again positive and statistically significant. The magnitude is 2 percent. These findings shed further light on the industries in which workers benefit the most from localb tourism shocks. It further supports the quantile regression results by indicating that it is Jamaican households from the lower middle to the upper middle of the national consumption distribution that are experiencing the greatest benefits from tourism booms. The 6th columns leaves open the possibility that there is in fact some impact for tourism workers in the industry, showing that a household with at least one period in the tourism industry does indeed benefit from a tourism shock. There are too few tourism employed households to limit the sample to only that segment of the workforce, so it is not possible to precisely determine the effects for households only employed in tourism across their observations.

Next we can consider the concern that the observed results are driven by the inflationary effects of the tourism shock, even when using regional price index adjusted expenditure and observing decreases in the likelihood of a household being in poverty. One prediction from the literature that seemed unlikely to be true in the short-to-medium run in the Jamaican case was the expectation of the localized shock increasing rent on average. In order to formally test for inflationary effects on rent, I regress real per-capita average monthly rent payments on development area tourism revenues for the sample of urban households. This regressions uses the main cross-section dataset. I find no effect of tourism earnings on real per-capita rent expenditures for households, as shown in table 9. The strong first Stage F-Statistic of 72 gives further support to the accuracy of the null effect.

To further confirm that the main results are not merely capturing inflationary pressures, I run regressions disaggregated by the employment type of a household. This refers to whether the household works in

the private sector, for the government, or as an own-account worker. While the wages of private sector and own-account employees are likely to be affected by short-run changes in market forces in their local communities, government employee salaries are determined by the national budget approved by the Jamaican Parliament for each fiscal year. Therefore, short to medium run inflationary effects can be expected to result in decreases in real per-capita expenditures for government employees whose wages will not respond to a sudden tourism shock. In table 10 I show the results of expenditure regressions disaggregated by the employment type of a household for those living in urban sub-districts. Column 3 shows a lack of any effect of increased tourism earnings on real per-capita expenditures for government workers. Only those working in the private sector are shown to have an increase in real consumption levels as a result of a positive tourism shock. These results lend further support to the prediction of few inflationary effects of tourism in the Jamaican context on local communities.

Table 9: IV: Regression of Real Per-Capita Rent Expenditure on Tourism Revenues

	Real Per-Capita Rent (1)
Tourism Expenditure (Tens of Millions USD)	10.620 (6.772) [-3.158,24.397]
First-Stage F-Statistic	72
Observations	11442

Notes: Each result above includes the coefficient estimate, followed by the standard error in parentheses. All regressions include a vector of household controls, development area dummies and year dummies. Tourist Expenditures are calculated at the development area level in tens of millions of 2024 U.S. Dollars. Household expenditures are inflated or deflated based on Jamaican regional price indexes to obtain real consumption levels across different parts of the country. All shift-share instrument shock components are demeaned to extract the idiosyncratic component of the shocks. *** p<0.01, ** p<0.05, * p<0.1.

A lack of significant negative consumption impacts for non private sector employees is promising as it suggests a lack of the crowding out effects observed by [Allen et al. \(2021\)](#) in the Barcelona setting. While this study does not speak to long-term welfare impacts of tourism on Jamaican local communities, this does suggest that at least in the short to medium run, there are not significant welfare losses for segments of the population not involved in the tourism sector.

Table 10: IV: Real Per-Capita Consumption By Employment Type

	Real Log Per-Capita Expenditure		
	Private Sector (1)	Government (2)	Own Account Worker (3)
Tourism Expenditure (Millions USD)	0.002* (0.001) [0.000,0.003]	-0.002 (0.001) [-0.005,0.000]	0.000 (0.001) [-0.002,0.003]
First-Stage F-Statistic	59	23	32
Observations	10295	2032	11819

Notes: Each result above includes the coefficient estimate, followed by the standard error in parentheses. All regressions include a vector of household controls, development area dummies and year dummies. Tourist Expenditures are calculated at the development area level in tens of millions of 2024 U.S. Dollars. Household expenditures are inflated or deflated based on Jamaican regional price indexes to obtain real consumption levels across different parts of the country. All shift-share instrument shock components are demeaned to extract the idiosyncratic component of the shocks. *** p<0.01, ** p<0.05, * p<0.1.

8 Discussion and Conclusion

This paper investigates the effects of growth in an areas tourism revenues on the consumption and welfare of households in a developing country. The two principal questions guiding the analysis are, do increases in tourist expenditures produce increase in real per-capita consumption for local households and, to what extent are consumption increases observed among households at or below the poverty line? I combine novel micro-datasets of tourist activity and household expenditure surveys in Jamaica spanning two decades, and spatially link the observations between 2001 and 2021 across consistent spatial units, to produce a comprehensive view of variations in tourism activity and household spending across the study period. This paper employs a shift-share instrumental variable identification strategy that harnesses two key aspects of tourist behavior: Variation in the exposure of different areas of Jamaica to tourists from different regions of origin, and plausibly exogenous variation in the total spending from tourists of different origin groups in Jamaica from year to year. Armed with this identifying variation this study then analyzes the effects of variations in annual development area tourism revenues on per-capita household expenditures, poverty, and six disaggregated spending categories.

I find strong evidence that larger tourism revenues generate a positive and economically significant effect on real consumption levels for urban residents of the surrounding development areas. These findings are driven by households working in non-tourism services and manufacturing. Among urban households in Jamaica, increases in tourism earnings generate statistically equivalent percentage increases in per-capita food and non-food expenditures though the dollar value of increases in non-food consumption are larger than those for food consumption. These findings also indicate that households use a sizable share of their increased consumption ability to invest in a key measure of welfare, health and medical services. Combined with meaningful decreases in the likelihood of households falling below the poverty line, I interpret these results as indicat-

ing that tourism revenues generate improvements in the welfare of households in areas experiencing tourism growth.

A particularly important result of this paper, related to the welfare of local households and larger discussions surrounding tourism, is the lack of evidence for significant inflationary effects of tourism on local populations. This stands in stark contrasts to the experiences of locals in destinations where residential tourism results in significant inflationary effects ([Allen et al. 2021](#); [Almagro and Domínguez-Iino 2025](#)). This is in line with the predictions of the hypotheses that the more ‘enclave’ style tourism of all-inclusive resorts would constrain short-run inflationary effects, but it is not possible given the data to precisely determine the reasons for the lack of observed changes in cost of living.

The results from this study provide three key insights on the effects of tourism on the Jamaican labor force. The first is that as would be predicted by the literature on labor demand shocks for labor intensive industries, increases in tourism revenues generate increases in the likelihood of households being employed in the tourism industry within a given area. The second result is that the benefits of the tourism shock produce increases in real consumption for households working in non-tourism industries. There is a similar story for poverty, with there being no observable effect on households employed within the tourism sector. This result may be in part because of a lack of identifying variation in the first stage when limiting the sample to only tourism employees, but it is still notable considering long-running complaints within the tourism sector in Jamaica about low-wages and poor working conditions. I provide additional support to these findings by employing an unbalanced panel dataset of households that is a subset of the repeated cross-section I utilize for the main analysis. This regression, though not a one-to-one match with the original reveals importantly that the positive effects of tourism on consumption are felt principally by workers who are employed in either non-tourism services or manufacturing throughout each period they are observed. The panel does, however, reveal statistically significant effects for households that are employed within the tourism industry for at least one period, though lack of statistical power prevents limiting the sample to households exclusively employed in tourism across each observation.

The third labor related result presented by this paper is that the skill-level of occupations, and the specific type of occupation are particularly relevant for where in the labor force benefits of tourism are observed. Increases in an areas tourism levels exclusively benefit residents working in either “Service, Crafts, and Trades” or “Plant and Machine Operators”, both of which are skill-level 2 occupations as defined by the ISOC ([International Labour Office 2012](#)). This result also is consistent with the result that workers in non-tourism services and manufacturing experience the greatest benefit from tourism growth. Particularly important to the aims of the Jamaican government, and more generally to tourism based development, is the finding that there are no observed effects for skill-level 1, unskilled occupations, though they represent a relatively larger share of the tourism labor force. There are also no observed effects on skilled agricultural workers, despite the aim of improved linkages to the tourism and agricultural sectors. Viewed against the goals of the Jamaican government and sustainable tourism development, tourism’s ability to drive improvements in well-being among

those in mid-skilled occupations who collectively represent roughly 75 percent of employment is a positive and nontrivial finding. At the same time, the lack of effect for those who are unskilled, or perform skilled agricultural work, also demonstrates the potential limits of tourism's inclusiveness.

Finally, in response to the second research question, this paper shows that tourism can produce improvements in consumption and well-being for households at or near the poverty line. This result is, however, tempered by the fact that these effects are only observed for urban households. Results of the quantile regression show that for urban communities, the positive effects of tourism on earnings are found in the 1st expenditure quartile. However the real expenditure levels of urban households in the first quartile in fact span the 1st and 2nd quartiles when considering the full national sample. This is further supported by the panel industry regressions which show households in the 2nd and 3rd quartiles benefiting from increased tourism revenues. Once again this result shows both the inclusive potential for tourism services, as well as their limits. Though a broad range of urban households are shown to benefit, the lack of observed effects for rural sub-districts (where the poorest Jamaicans live) as we can see in table 2, shows the difficulty of harnessing back-linkages to generate prosperity across industries and geography.

8.1 Implications For Policy and Research

What are the implications of these results for policy and research into tourism-based development? This paper shows that tourism can be an effective means for generating employment in the context of local communities in a middle-income country such as Jamaica. This suggests policies meant to encourage tourism investment, such as those in Jamaica providing relief from taxes and tariffs on productive inputs for tourism sector firms have the potential to be welfare improving for communities directly exposed to tourism. The extent of these policies must, however, be weighed against the magnitude of the economic benefits to households, and importantly, the magnitude of the change in tourism revenues needed to generate real gains in well-being. The scale and growth of the Jamaican tourism industry over the previous two decades has assured that households in communities in tourism have on average experienced some benefit from the sector. This scale has been achieved in part by proactive policies aimed at attracting foreign direct investment in new accommodations. A full accounting of whether the welfare benefits experienced by households are commensurate with the government investment is beyond the scope of this paper and would be an informative area of focus for additional research. That being said, these results do demonstrate the potential for welfare gains that are economically meaningful in a context that is comparable to those in a number of other countries.

This study presents important and nuanced implications for research and policy related to the effects of the type of tourism that areas choose to specialize in. While there has been substantial criticism of the all-inclusive style of tourism common in many developing country contexts for its lack of integration with local communities (Çiftçi et al. 2007; Issa and Jayawardena 2003), this paper suggests that lack of integration may in fact be *beneficial* for local welfare in certain contexts. This paper do not find significant short-run impacts on cost of living for tourism exposed development area residents, which is particularly notable when we con-

sider the fact that tourists to Jamaica are on average significantly more affluent than most residents than the localities in which they vacation.³¹

In terms of research, this adds an important dimension to the study of tourism, and more broadly, the study of the effects of demand shocks on local economies. As [Allen et al. \(2020\)](#) and [Almagro and Domínguez-Iino \(2025\)](#) show, integrated residential tourism can significantly alter living costs and amenities for local residents, with some experiencing considerable losses. This has in turn contributed to local backlash to mass-tourism in some settings. However in the case of enclave-tourism settings, a key aim has been to *increase* the engagement of tourists with the locals of the areas they visit.³² Indeed, protests against the tourism industry have largely related to low wages and poor working conditions, but not to the presence of tourists themselves. Research investigating the trade-offs between the two tourism styles, and the optimal type of tourism for specific contexts would be a natural extension of this work. For policymakers aiming to develop local tourism industries, it is important to consider factors such as the difference in income levels between local residents and the tourists to whom an area is catering, differences in preferences over amenities between the two groups, and the extent to which the tourism growth can benefit workers in other sectors via spillovers. The extent to which tourism is truly inclusive and welfare improving for the mass of a local population will depend crucially on those elements.

Turning to the subject of service-led structural change, the results of this study lend some support to optimistic views of the ability of service industries to generate prosperity, while also demonstrating their potential limitations. Tourism does show an ability to absorb lower-skilled labor as described by [Nayyar et al. \(2021\)](#), however it is not obvious from the results the extent to which these new tourism workers benefit relative to workers in other industries. Additionally, the lack of effects for unskilled workers suggests limits on the inclusiveness of certain types of tourism. In terms of spillovers, while we do see benefits to the real consumption of manufacturing workers in table 8, it is not clear if these results are driven by back-linkages to the manufacturing sector as would be consistent with [Faber and Gaubert \(2019\)](#), or if this is primarily driven by a tighter labor market. More broadly, the fact that the majority of beneficiaries of windfalls from tourism growth lie in non-tourism service industries does bear some similarity to the pattern discussed by [Gollin et al. \(2016\)](#) of natural resource extraction-based economies producing urbanization in “consumption cities” with little industrial production. Whether tourism has the potential to drive growth enhancing urbanization likely depends on whether tourism linkages with industrial sectors are capable of generating durable growth in Jamaican manufacturing.

A final policy implication of these findings is the importance of both promoting completion of secondary schooling and of up-skilling for segments of a population in order for the benefit from the spillover effects of tourism services to be felt broadly. Results demonstrate that skill-level 2 occupations are consistently the ben-

³¹According to the Ministry of Tourism Exit Surveys, on average 50 percent of tourists have an income over 60,000 dollars USD. See table 20 in Appendix A.2.

³²For example, the Jamaican government has in recent years begun pushing for a greater supply of short-term rental offerings such as Airbnb, which has grown considerably since arriving on the island in 2015.

eficiaries of gains in tourism for residents of an area. Therefore training programs preparing a workforce for the types of occupations that benefit from the growth of tourism demand may be advisable in order to raise the likelihood that households are capable of reaping the benefits of growth in the tourism sector. The skill-level distribution of a country’s existing workforce is an important consideration for policy makers evaluating the short-run benefits of policies promoting tourism, particularly the “Sun, Sand, and Sea”-style tourism of Jamaica. It is possible that if the labor force is largely composed of unskilled workers that a smaller share of the population may be able to benefit from the tourism spillovers.

There are two additional avenues for future research that builds upon this paper that I see as promising. The first would be to again study the impacts of local tourism shocks, but to also consider internal migration of Jamaican households. While it is broadly known that migration to the the tourism zones from rural areas is a common feature of Jamaican demographic shifts, it is not possible to observe this in the household datasets I use. I would consider the effects observed by this study to be a lower-bound on the effects of tourism, as they demonstrate the ability of tourism to raise earnings both for new residents and long-time inhabitants of an area. That being said, fully quantifying the impacts of tourism on economic development will require considering the movement of individuals and/or households across regions of Jamaica for work. The second avenue would be disentangle the extent to which the observed findings are a result of labor-demand induced increases in earnings, the effects of back-linkages from tourism to other sectors, or the effects of an increase in an area’s real wage bill on demand for local goods and services. Further research considering these short-to-medium run channels could be useful for testing additional policy scenarios and help to better capture which residents benefit and to what degree. This would also be useful for understanding the lack of observed impacts on households employed in tourism related industries, or who live in rural districts.

8.2 Conclusion

This paper has contributed principally by improving understanding of the magnitude and scope of the effects of tourism services on household consumption and well-being in a developing country. This study has demonstrated that fully characterizing the impact of tourism on local economic development requires considering heterogeneity of households in terms of skill-levels and occupations, and that these in turn impact which segments of the consumption distribution benefit from positive tourism shocks. In addition, this study provides a balanced analysis of the potential for tourism to generate economically meaningful gains for major segments of the population, while also qualifying these impacts by showing limits in effects across space, and skill-level.

Tourism has grown into a major global sector, and presents opportunities for emerging economies to exploit natural and cultural endowments to the benefit of their populations. Tourism services show promise in some instances, but in many cases have also been criticized for what is considered their exploitation of local populations. This paper has shown that real economic development gains are possible from significant segments of a local population in the presence of positive tourism shocks, while also showing that tourism based development involves important trade-offs and limitations that must be considered in order to best harness its

potential for meaningful local prosperity.

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A Appendix

A.1 Instrument Summary Statistics and First Stage Regressions

One concern when using shift-share instrumental variables in a panel setting is the possibility of serial correlation in the shifts. As explained by [Borusyak et al. \(2024\)](#), if shocks g_{kt} are correlated with shocks from period $t - 1$, then the estimated effect of tourism on the outcome variables reflects both the contemporaneous effect and the dynamic effect of the previous shock.

Table 11: Summary of Exposure and Shock Measures

	Variable	Mean
1	Mean Exposure Share	0.02
2	Median Exposure Share	0.00
3	Standard Deviation Exposure Share	0.07
4	Mean Shock	0.11
5	Median Shock	0.03
6	Standard Deviation of Shock	0.34
7	Inverse HHI: Shocks	280.19

Notes: These summary statistics cover the SSIV shocks and exposure shares calculated from the Ministry of Tourism Exit Surveys.

A.2 Shift-Share Instrument Diagnostics and Summary Statistics

Table 12: IV: Shift-Share Instrumental Variable Full Summary Statistics

	Year	Mean Exposure	Median Exposure	SD Exposure	Mean Shock	Median Shock	SD Shock	Inverse HHI: Shocks
1	2001	0.02	0.00	0.08	0.05	-0.01	0.29	236.76
2	2002	0.02	0.00	0.08	0.10	0.15	0.26	308.57
3	2003	0.02	0.00	0.08	0.07	0.04	0.11	280.96
4	2004	0.02	0.00	0.07	0.02	0.00	0.20	298.28
5	2005	0.02	0.00	0.08	0.16	-0.02	0.32	267.17
6	2006	0.02	0.00	0.08	0.60	0.25	0.71	267.17
7	2008	0.02	0.00	0.07	0.04	0.10	0.25	270.23
8	2009	0.02	0.00	0.07	-0.04	-0.12	0.33	264.21
9	2010	0.02	0.00	0.07	-0.04	-0.09	0.26	258.78
10	2011	0.02	0.00	0.07	0.02	-0.01	0.11	258.27
11	2012	0.02	0.00	0.07	0.60	-0.13	1.39	250.70
12	2013	0.02	0.00	0.06	-0.10	-0.07	0.14	274.58
13	2014	0.02	0.00	0.07	0.24	0.24	0.14	243.03
14	2016	0.02	0.00	0.07	0.09	0.12	0.22	252.44
15	2017	0.02	0.00	0.06	0.21	0.26	0.29	351.61
16	2018	0.02	0.00	0.06	0.32	0.18	0.44	350.13
17	2019	0.02	0.00	0.06	0.07	0.01	0.21	293.13
18	2021	0.02	0.00	0.07	-0.43	-0.26	0.41	317.39

Notes: Above are summary statistics for the SSIV instruments for all years of the analysis.

I report the AKM standard errors of a shock-level regression following the methodology of [Adão et al. \(2019\)](#) in table 13. In panels A, B, and C, the results of my baseline regression specifications are compared for all Jamaican households, urban households, and rural households, respectively. [Adão et al. \(2019\)](#) propose two

methods for calculating the standard errors, and the 95 percent confidence intervals that correct for these biases. I will refer to these calculation approaches as AKM and AKM0, following the terminology in their paper. I show the implied estimates for five different standard error specifications: Homoskedastic, White standard errors, regular clustered standard errors, and finally, the AKM and AKM0 specifications. The AKM approach corrects for potential correlation in shocks between units that have similar exposure shares. For both the AKM and AKM0 standard errors, the results of my baseline regressions remain unchanged. In each of these calculations I consider shock-level variation, and cluster the shocks based on the country.

Table 13: Comparison of AKM Regression Results Across Methodologies

Method	Estimate	Std.Error	P.Value	Left.CI	Right.CI
Panel A: IV Estimates All Regions					
Panel A: IV Estimates All Regions					
Homoscedastic	2e-04	5e-04	0.7102	-7e-04	0.0011
EHW	2e-04	5e-04	0.7166	-7e-04	0.0011
Reg. Cluster	2e-04	7e-04	0.8078	-0.0012	0.0015
AKM	2e-04	2e-04	0.3069	-2e-04	5e-04
AKM0	2e-04	2e-04	0.2502	-1e-04	8e-04
Panel B: IV Estimates Urban Households					
Panel B: IV Estimates Urban Households					
Homoscedastic	0.002	6e-04	0.0011	8e-04	0.0032
EHW	0.002	6e-04	0.0016	8e-04	0.0033
Reg. Cluster	0.002	4e-04	0	0.0011	0.0029
AKM	0.002***	5e-04	1e-04	0.001	0.003
AKM0	0.002***	7e-04	0	0.0013	0.004
Panel C: IV Estimates Rural Households					
Panel C: IV Estimates Rural Households					
Homoscedastic	-3e-04	6e-04	0.6459	-0.0016	0.001
EHW	-3e-04	6e-04	0.6465	-0.0016	0.001
Reg. Cluster	-3e-04	0.0011	0.7841	-0.0024	0.0018
AKM	-3e-04	3e-04	0.255	-8e-04	2e-04
AKM0	-3e-04	3e-04	0.2225	-9e-04	2e-04

Notes: The tourism expenditure is measured in millions and is measured at the level of the development area. *** p<0.01, ** p<0.05, * p<0.1.

Next I show graphs before and after my de-meaning of the shift-share tourism arrival shocks.

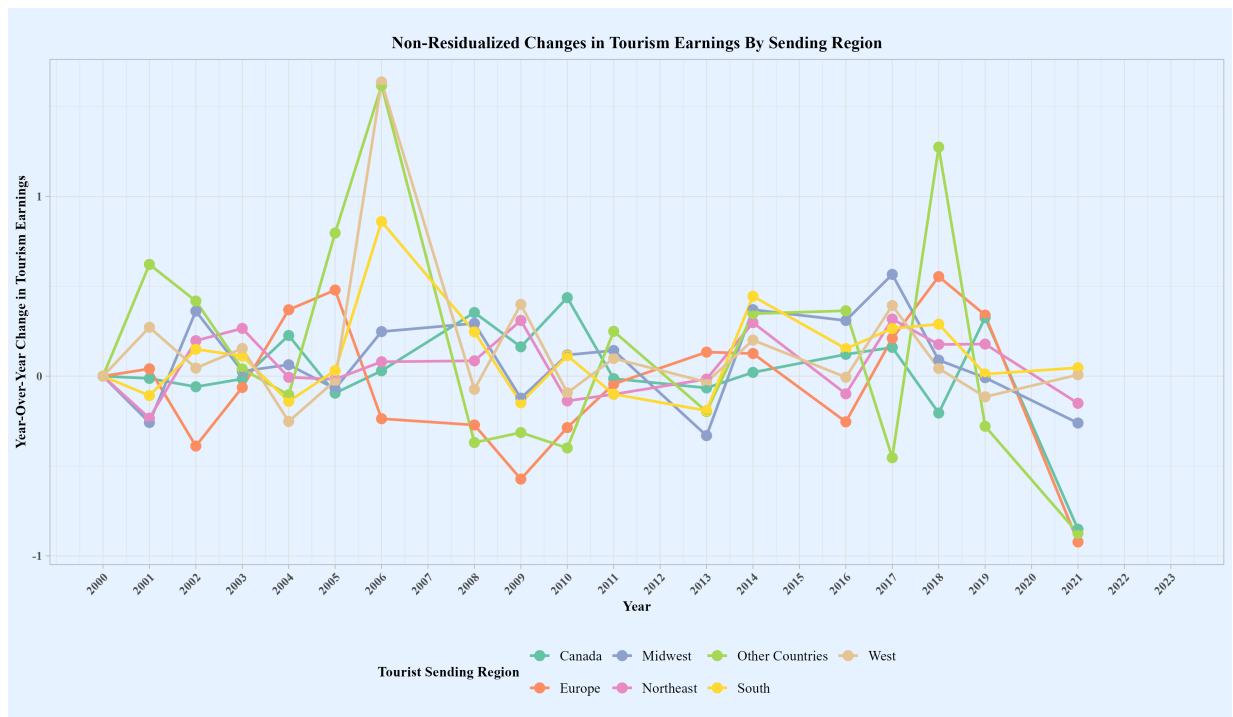


Figure 8: Graphs of Original Shift-Share Shocks

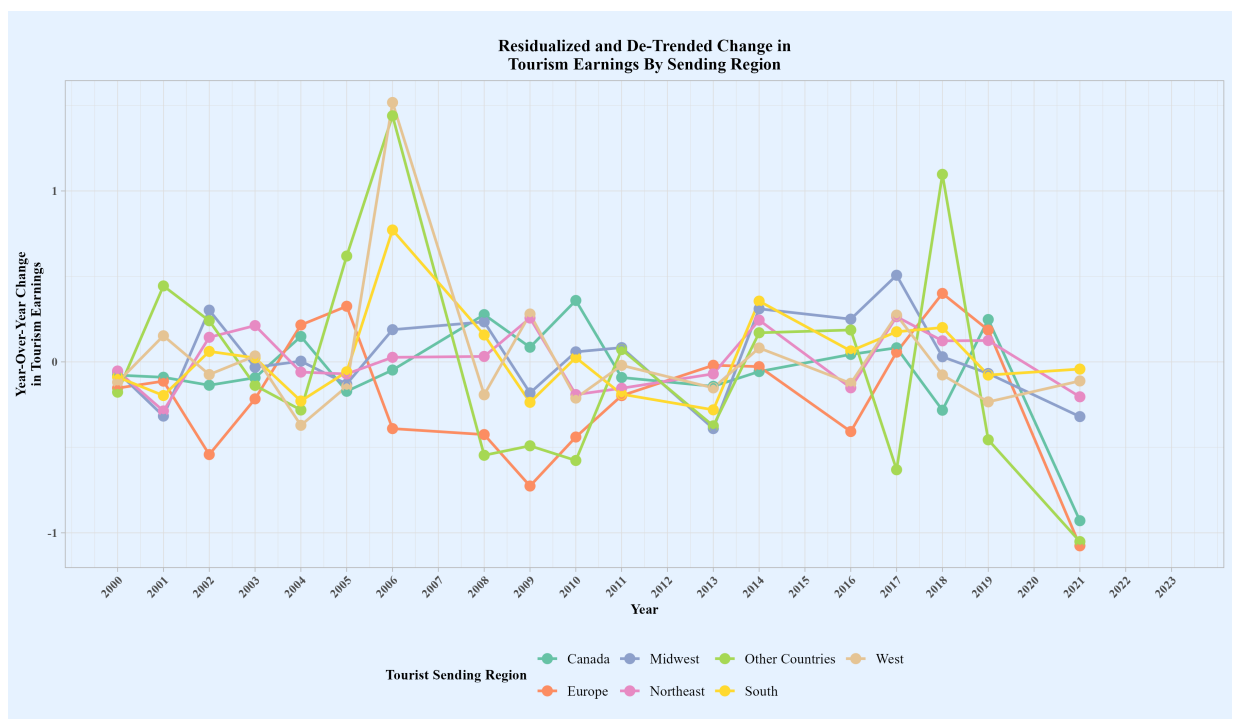


Figure 9: Graph of Residualized Shift-Share Shocks

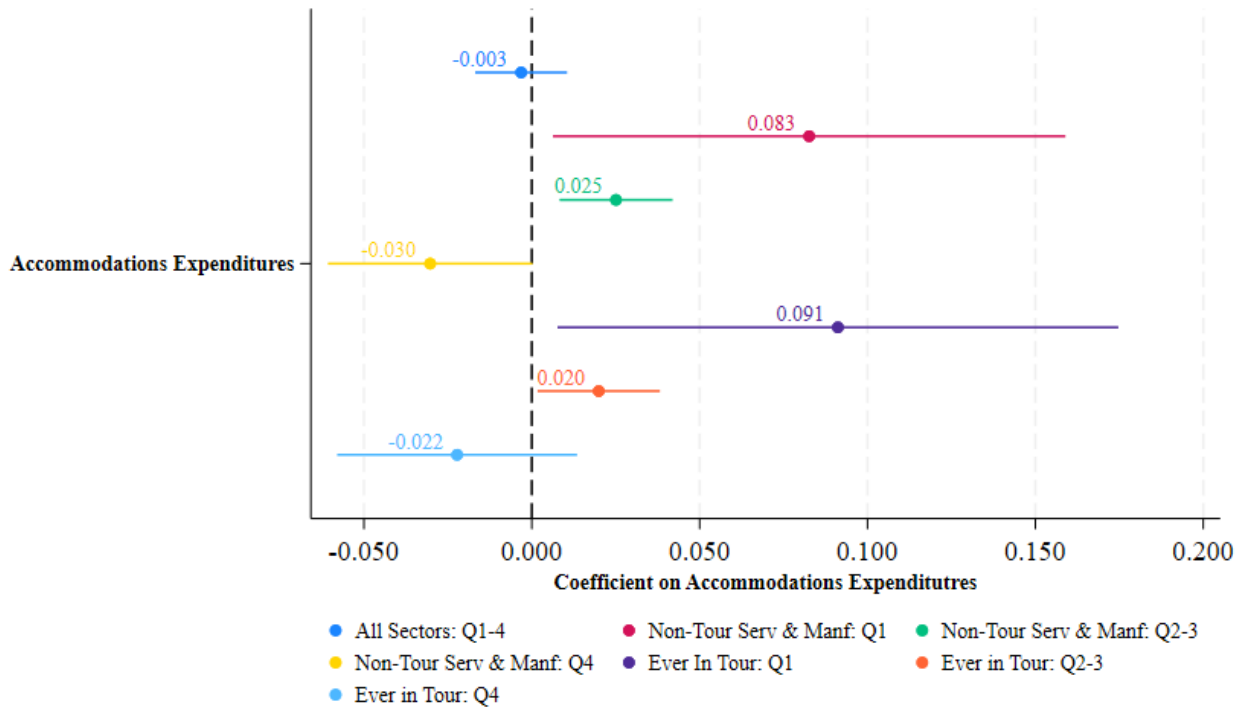
A.3 Panel Regression Results

Table 14: IV: Panel Regression of Baseline Results

	Log Per-Capita Expenditure(USD)		
	(1)	(2)	(3)
Accommodations Expenditures(Millions USD)	-2.8e-04 (7.1e-04)	-2.8e-04 (7.1e-04)	-3.2e-04 (6.8e-04)
Household Size			-2.1e-01*** (1.4e-02)
First-Stage F-Statistic	26	26	26
Observations	6032	6032	6032
Standard Deviation	0.711	0.711	0.711
Household Control	No	No	Yes
Household Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	No	Yes	Yes

Notes: Accommodation Expenditures are calculated at the development area level in tens of millions of 2024 U.S. Dollars. Household expenditures are inflated or deflated based on Jamaican regional price indexes to obtain real consumption levels across different parts of the country. All shift-share instrument shocks are demeaned to extract the idiosyncratic component of the shocks.

Figure 10: Panel Comparison of Coefficients Across Industries of Employment



A.4 Additional Regression Results

Table 15: IV: Non-Consumption Expenditure

	Urban Log Per-Capita Non-Consumption Expenditure	Rural Log Per-Capita Non-Consumption Expenditure
Tourism Expenditure (Millions USD)	3.2e-03 (5.0e-03) [-0.007,0.013]	3.8e-03 (2.1e-03) [-0.000,0.008]
First-Stage F-Statistic	68	10
Observations	7282	11832
Standard Deviation	1.979	1.961
Number of Clusters	39	64
HH Controls	Yes	Yes
DA Dummy	Yes	Yes
Year Dummies	Yes	Yes

Notes: Tourism expenditure is measured in millions and is measured at the level of the development area.

Table 16: IV-Relationship Between Tourism Earnings and Log Household Expenditure By Per-Capita Expenditure Decile Urban Households

	Log Per Capita Expenditure(USD) Separated by Deciles					
	(1-10)	(2-10)	(4-10)	(6-10)	(8-10)	(9-10)
Tourism Expenditure (Millions USD)	1.7e-03** (5.1e-04)	1.5e-03* (5.7e-04)	1.5e-03** (5.4e-04)	1.2e-03* (5.6e-04)	1.6e-03* (6.2e-04)	2.2e-03** (6.7e-04)
First-Stage F-Statistic	70	69	54	61	66	48
Observations	11526	11005	9747	8050	5860	4457
Standard Deviation	0.721	0.654	0.589	0.544	0.522	0.535
HH Controls	Yes	Yes	Yes	Yes	Yes	Yes
DA Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Tourism expenditure is measured in millions. All household controls are included.

Table 17: IV - Relationship Between Tourism Earnings and Log Per-Capita Household Expenditure by Rurality

	Urban	Rural
Tourism Expenditure (Millions USD)	4.3e-04 (8.8e-04) [-0.001,0.002]	-8.2e-04 (1.2e-03) [-0.003,0.002]
First-Stage F-Statistic	61	18
Observations	17792	18381

Notes: Accommodations Expenditures are calculated at the development area level in tens of millions of 2024 U.S. Dollars. Household expenditures are inflated or deflated based on Jamaican regional price indexes to obtain real consumption levels across different parts of the country. All shift-share instrument shocks are demeaned to extract the idiosyncratic component of the shocks. Female Household Head indicates either a single adult female or household with multiple persons for which the household head or principal earner is female.

Table 18: IV: Regression of Log Per-Capita Expenditure By Gender of Individual or Household Head

	Urban		Rural	
	Male-Headed Households	Female Headed Households	Male-Headed Households	Female Headed Households
Tourism Expenditure (Millions USD)	-4.6e-04 (1.2e-03) [-0.003,0.002]	1.2e-03 (1.7e-03) [-0.002,0.005]	4.8e-04 (1.4e-03) [-0.002,0.003]	1.4e-04 (1.5e-03) [-0.003,0.003]
First-Stage F-Statistic	35	20	11	9
Observations	10989	9324	13351	7716
Standard Deviation	0.723	0.725	0.722	0.682
Number of Clusters	45	45	70	70
HH Controls	Yes	Yes	Yes	Yes
DA Dummy	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes

Notes: The tourism expenditure is measured in millions and is measured at the level of the development area.

Table 19: IV- Comparing The Impact of Tourism on Urban Homeowners vs. Urban Renters (Excluding Kingston)

	Homeowner Expenditure	Renter Expenditure
Tourism Expenditure(Millions USD)	3.8e-03* (1.4e-03) [0.001,0.007]	1.1e-04 (8.1e-04) [-0.002,0.002]
First-Stage F-Statistic	13	15
Observations	6063	9613
Standard Deviation	0.706	0.743
Number of Clusters	34	60
Bootstrapped Standard Errors	Yes	Yes
HH Controls	Yes	Yes
DA Dummy	Yes	Yes
Year Dummies	Yes	Yes

Notes: Bootstrapped standard errors are provided in parentheses below the coefficient estimates. The bootstrapped confidence intervals are in brackets below the standard error estimates. Accommodations Expenditures are calculated at the development area level in tens of millions of 2024 U.S. Dollars. Household expenditures are inflated or deflated based on Jamaican regional price indexes to obtain real consumption levels across different parts of the country. All shift-share instrument shocks are demeaned to extract the idiosyncratic component of the shocks.

A.5 Tourism Summary Statistics

**Share of Total Annual Accommodation Expenditures In Jamaica
By Tourists From Different Regions 2000-2021**

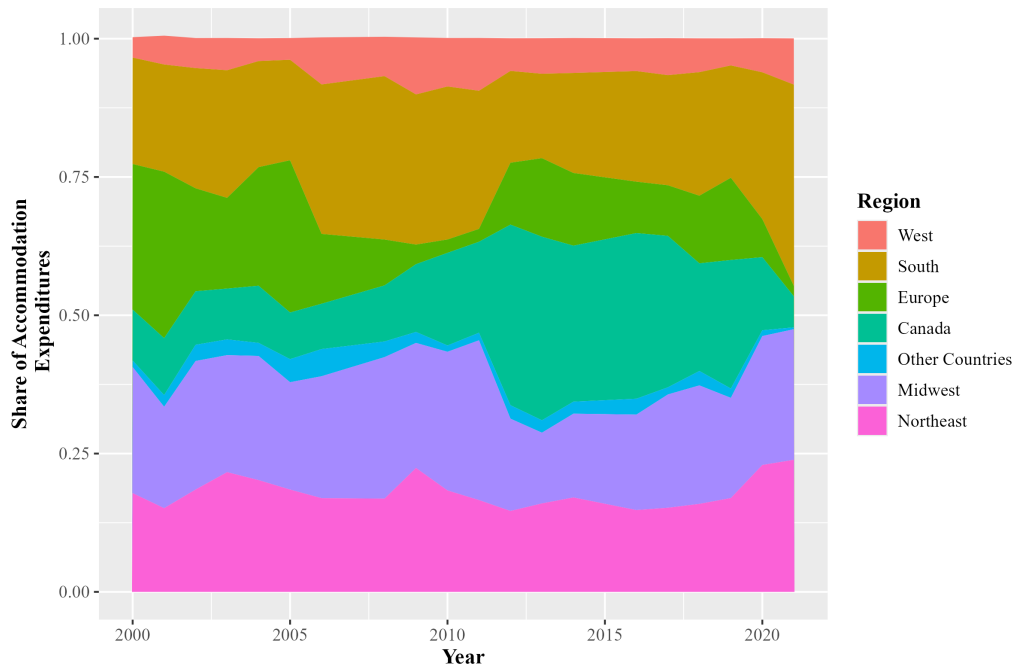


Figure 11: Share of Expenditures by Region

Table 20: Tourist Summary Statistics

	Mean	Standard Deviation	Median
Avg. Accom Price per Person	590.03	495.58	520.69
Number of People in Party	1.95	0.96	2.00
Total Cost of Trip	2706.91	1845.23	2350.90
Length of Stay	7.47	5.88	7.00
Visit for Vacation	0.74	0.44	1.00
Return Visitor	0.47	0.50	0.00
Summer Visitor	0.57	0.49	1.00
Income Over US60,000	0.50	0.50	0.00
Observations	78774		

Source: Author's own calculations based on Ministry of Tourism Exit Surveys (2000-2023).

Table 21: Variation In Tourist Expenditure Levels Over Time Lags

Statistic	1 Year Lagged Value	5 Year Lagged Value	10 Year Lagged Value
Mean Expenditure Change	21.09	46.04	63.53
Median Expenditure Change	7.92	31.06	36.73
Min Expenditure Change	0	0.02	0.02
Max Expenditure Change	235.54	430.92	449.26
SD Expenditure Change	33.35	63.34	89.45

Notes: All expenditures are in millions of US Dollars corrected for inflation to the year 2024.

A.6 Additional Maps And Geographic Summary Statistics



Figure 12: Map of Jamaican Parishes

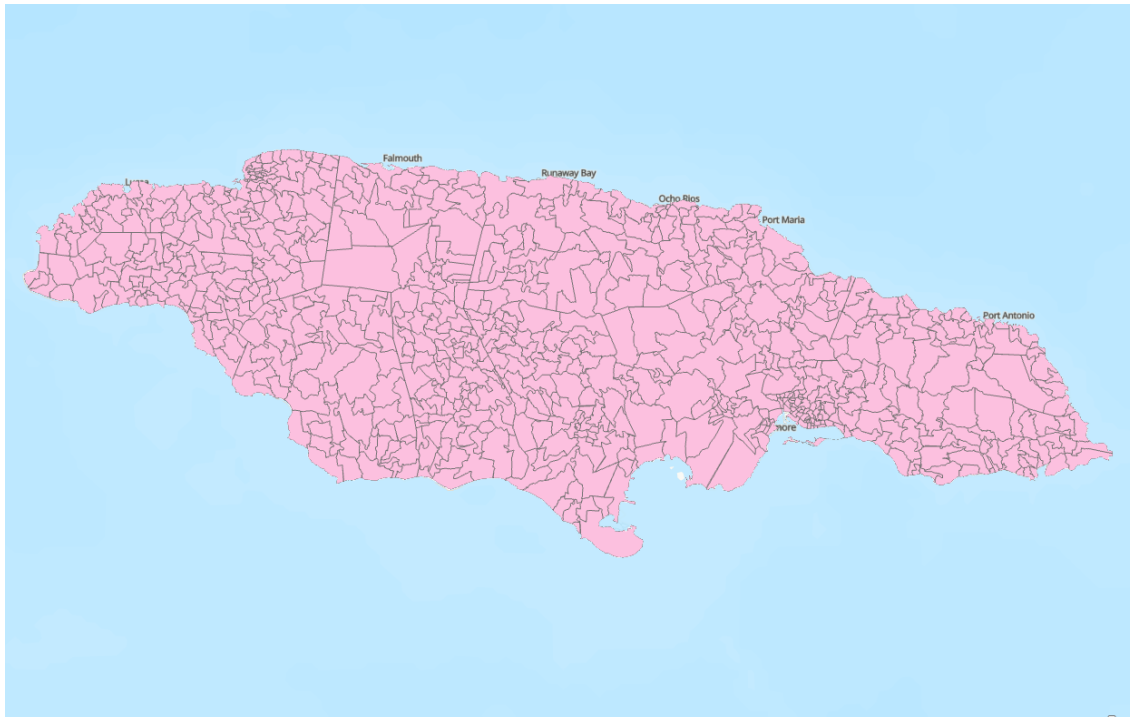


Figure 13: Jamaica Community Boundaries 2011 (STATIN Geographic Services Unit)

Table 22: Development Area Summary Statistics

Statistic	N	Mean	St. Dev.	Min	Max
Population	84	32,107.25	37,109.81	1,329	192,044
Area	84	130.52	88.58	3.56	446.33
Population.Density	84	610.98	1,429.67	42.12	8,410.05

Notes: Area is measured in square kilometers. Population is based on the 2011 Census.

A.7 Additional Household and Labor Force Statistics

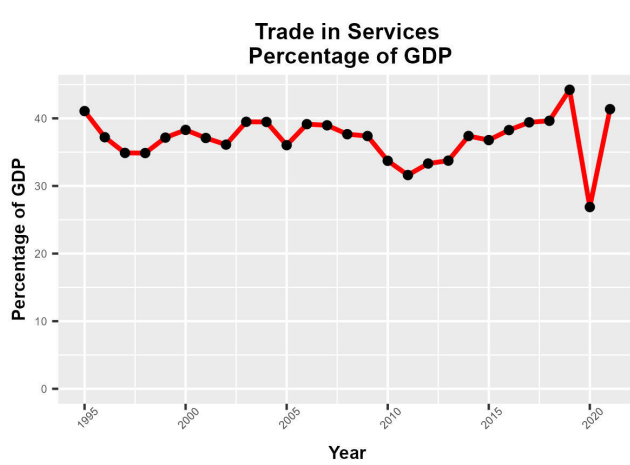


Figure 14: Services Sector Share
Source: World Bank

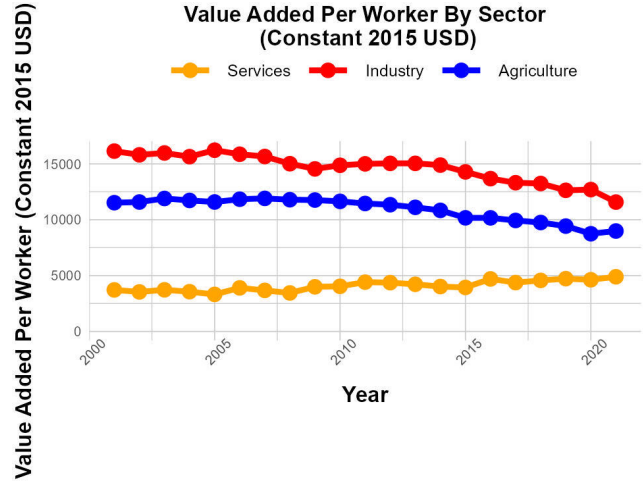


Figure 15: Multi-Sector Value Added
Source: World Bank

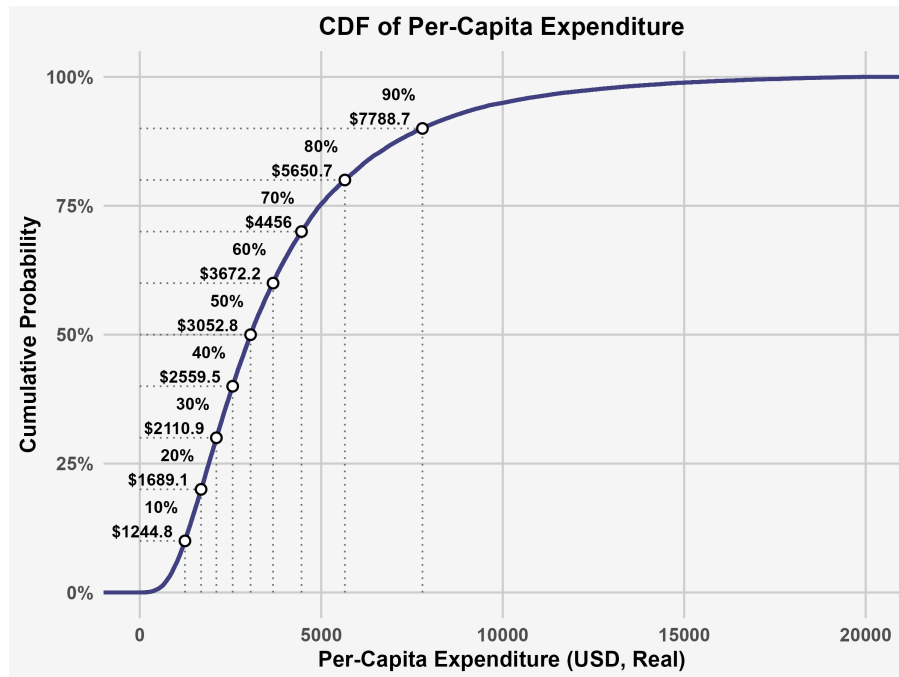


Figure 16: Real Per-Capita Expenditure Distribution of Jamaica Households
Source: Jamaica Survey of Living Conditions

Panel A: Agriculture vs Tourism Sector

Table 24: Agriculture vs. Tourism Services Comparison

	Agriculture		Tourism Services		Difference
	Mean	SD	Mean	SD	T-Stat
Per-Capita Consumption	2965.58	2372.50	3548.34	3046.32	-19.48***
Per-Capita Total Expenditure	3186.53	2767.628	3915.44	3878.217	-18.82***
Per-Capita Food Expenditure	1646.33	1346.511	1655.67	1295.775	-13.87***
Per-Capita Non-Food Expenditure	1319.75	1346.134	1893.32	2194.854	-18.72***
Per Capita Non Consumption Expenditure	341.91	897.240	449.24	1523.801	-8.50***
Non-Food Share of Consumption Expenditure	0.43	0.143	0.51	0.136	-22.66***
Non-Food Share of Tot. Expenditure	0.42	0.140	0.48	0.132	-17.70***
Consumption Share of Tot. Expenditure	0.96	0.083	0.95	0.091	11.81***
Years of Schooling	10.27	3.765	12.86	4.432	-17.95***
Household Decile	5.25	2.818	6.04	2.680	-27.06***
Male HH Head	0.54	0.499	0.61	0.488	0.23
Female HH Head	0.15	0.352	0.34	0.474	-15.37***
Single Male	0.30	0.458	0.04	0.196	18.22***
Single Female	0.02	0.141	0.01	0.096	-3.39***
Observations	6621		2862		9483

Panel B: Manufacturing vs. Tourism

Table 25: Manufacturing vs. Tourism Services Comparison

	Manufacturing		Tourism Services		Difference
	Mean	SD	Mean	SD	T-Stat
Per-Capita Consumption	3940.06	3235.83	3548.34	3046.32	-5.54***
Per-Capita Total Expenditure	4422.46	4229.719	3915.44	3878.217	-5.01***
Per-Capita Food Expenditure	1902.13	1430.458	1655.67	1295.775	-5.07***
Per-Capita Non-Food Expenditure	2037.93	2244.189	1893.32	2194.854	-4.71***
Per Capita Non Consumption Expenditure	627.78	1744.541	449.24	1523.801	-1.48
Non-Food Share of Consumption Expenditure	0.50	0.143	0.51	0.136	-2.40*
Non-Food Share of Tot. Expenditure	0.46	0.138	0.48	0.132	-1.94
Consumption Share of Tot. Expenditure	0.94	0.100	0.95	0.091	1.25
Years of Schooling	12.35	2.790	12.86	4.432	-2.69**
Household Decile	6.43	2.732	6.04	2.680	-5.27***
Male HH Head	0.52	0.500	0.61	0.488	-0.80
Female HH Head	0.25	0.433	0.34	0.474	-2.83**
Single Male	0.20	0.403	0.04	0.196	4.91***
Single Female	0.02	0.156	0.01	0.096	-1.55
Observations	1330		2862		4192

Notes: All statistics are weighted by household size. Panel A reports means, medians, and standard deviations for the full sample. Panel B compares urban and rural households using t-tests with unequal variances. *** p<0.01, ** p<0.05, * p<0.1.

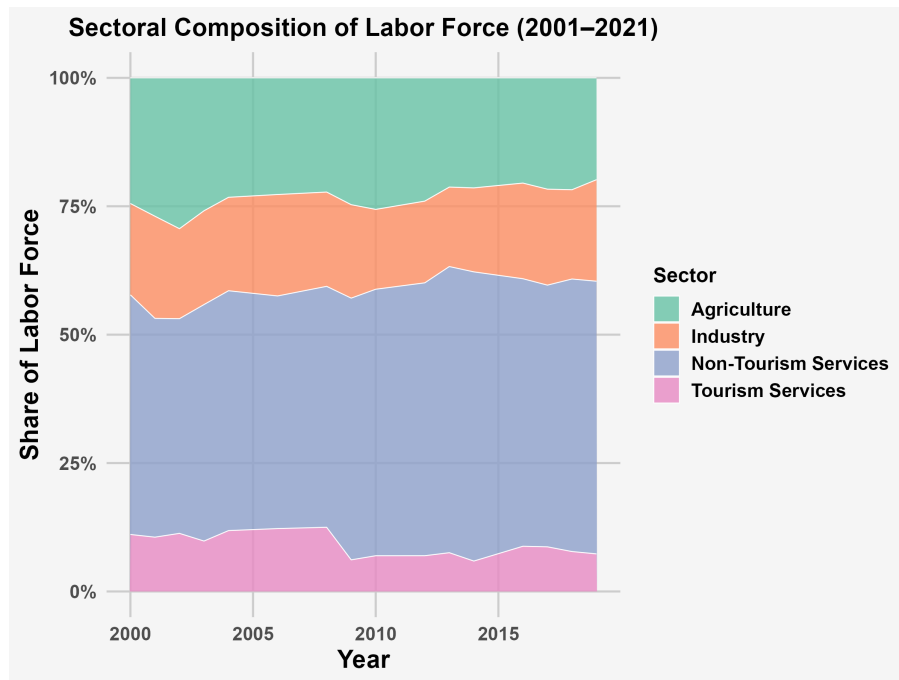


Figure 17: Sector Shares of Jamaican Labor Force
Source: Jamaica Survey of Living Conditions