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# The socio-economic impact of regional tourism: an occupation-based modelling perspective from Sweden

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**ABSTRACT**

Traditional measurements of tourism's economic impact refer to primary and secondary effects that are typically quantified through input–output (IO) methodology. From a sustainable regional development perspective, however, economic impact analyses are criticised for their one-dimensional analysis focussing mainly on growth-oriented effects represented by aggregates for output, employment, income or tax. Although existing literature comprises various extensions of IO models, the focus of these models is restricted to indicators at a high aggregate level. Thus, distributional or other socio-economically important aspects related to the tourism workforce are seldom discussed. In our approach to study tourism's impacts over a nine-year period, we consider macro-and meso-level perspectives and disaggregate tourism's impact on regional employment and income for particular occupational areas in the Swedish region of Jämtland. Results indicate weakening employment effects; relatively low but increasing income-inequalities; and increasing shares of elementary positions with precarious working conditions despite para-industrial initiatives from tourism institutions to develop the industry. By enhancing traditional tourism economic impact methodology, we hope that our approach is supportive in putting the tourism workforce at the heart of the regional development and tourism sustainability discourse.

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## Introduction

Tourism's economic impact has long been studied and remains an important research field (Jennings 2009). A recent review of the economic impact literature (Comerio & Strozzi 2019) revealed that the majority of studies aimed to estimate the primary and secondary effects of tourism activities in order to highlight the economic significance of the tourism industry (Frechtling 2013). Typically, multipliers are utilised to estimate tourism's contribution to net changes of economic indicators, such as sales, employment, income or tax (Dwyer et al. 2004). However, to fully understand the impacts of economic activities should be studied in relation to sustainability, a broad multidimensional concept that includes environmental, social, economic and institutional dimensions (Pulido-Fernández et al. 2015). Following Copus and Crabtree (1996), the concept of socio-economic sustainability refers to individual well-being and socio-

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economic prosperity and thus also comprises employment and income structures that sustain the livelihoods of the regional population.

However, only limited insights can be gained regarding the path of socio-economic sustainability with traditional economic impact models because these models merely build on indicators at high aggregate levels (Elsner 2007; Lee 2009; Söderbaum 2007). For example, impact studies on tourism *employment* effects typically consider aggregates of the total number of jobs associated with tourism activities (Crompton 2006). Thus, little knowledge is gained about the *types of jobs* that have been created and sustained in the course of tourism activities (Daniels et al. 2004). Similarly, Lee (2009) argued that studies looking at *income* effects typically do not consider the *distribution* of income among the tourism workforce; however, income inequality leads to negative consequences for regional poverty reduction and socio-economic development because it hampers people's sense of fulfilment, self-worth and well-being (Schilcher 2007). Thus, incorporating distributional aspects of income into economic impact analyses provides important additional insights into the sustainability of a regional socio-economic system (Elsner 2017; Söderbaum & Brown 2010; Ulrich 2010).

In fact, the 8$^{th}$ and 10$^{th}$ United Nation's Sustainable Development Goals (SDGs) highlight sustainable economic growth, decent work and reducing inequalities as major goals for sustainable regional development (UN 2015). Insights regarding aggregated indicators from conventional economic impact models are valuable for quantifying tourism's impact at a macro-level perspective. However, as noted by Crompton (2006), these studies are often utilised to support and confirm major investment decisions by public officials. Moreover, since traditional impact models' capability to address sustainability dimensions is limited, policy and planning decisions grounded solely on monetary-based aggregates entail the risk that socio-economic grievances concerning the regional tourism workforce are systematically overlooked.

Against this background, the purpose of this study is to estimate tourism's impact from a socio-economic perspective with a special focus on regional occupation and income distribution effects. Methodologically, we regionalise the national input–output (IO) model (Flegg & Webber 2000), disaggregate employment effects (Daniels 2004) and examine income distribution effects through Gini coefficients and Lorenz curves (de Maio 2007). Qualitative data from interviews with industry representatives provide context-specific insights to reflect these occupation and income distribution effects. Our approach helps to evaluate grievances in selected occupational areas of regional tourism and tourism's specific role in affecting income distribution among the participants of the regional workforce.

## Literature review

The majority of economic impact models are concerned with tracing the flow of tourist spending throughout the broader economy based on the principle of sectoral linkages and multipliers (Comerio & Strozzi 2019). These monetary flows are expressed by several circular loops: the direct net impact on sectors' sales from selling products and services to tourists, the indirect impacts from further spending on backward-linked sectors, and the induced impacts resulting from spending through increased household income. The IO model provides the basic framework for modelling monetary flows between industry sectors (intermediate linkages) as well as for deriving multipliers for various economic indicators (Miller & Blair 2009). The social accounting matrix (SAM) extends this framework by considering additional economic actors, such as households, firms, governments and factors of production (Hara 2008). Thus, by incorporating different income groups, the SAM considers socio-economic aspects to a certain extent, albeit at aggregated levels (Blake 2008; Mahadevan et al. 2017). The assumptions of IO models have, however, garnered criticism for producing inaccurate results (Blake 2009; Briassoulis 1991; Dwyer et al. 2004). The main criticism is that both basic IO models and SAMs do not consider price changes resulting from changing demand for tourism products. Therefore, economies of scale

and substitution effects are not considered. Similarly, the crowding-out effects of other economic activities are missing when increasing tourism activities eventually reduce the supply and demand of competing industries. A growing industry can therefore lead to skilled workforce shifts from other industries to the tourism sector (Dwyer et al. 2000). Furthermore, the basic IO/SAM framework does not reflect resource limitations in the producing sectors. As such, additional tourism demand can theoretically be met infinitely. As a result, the linear modelling approach treats large increases in demand as large positive impacts, which can in turn lead to overestimations of secondary effects.

To address these assumptions and shortcomings, computable general equilibrium (CGE) models became a relevant alternative (Dwyer 2015). CGE models use SAMs as data input and incorporate a set of equations to simultaneously depict price effects and other behavioural assumptions for various economic actors and processes based on neoclassic economic theory (Burfisher 2017). These behavioural assumptions aim at modelling the response of specific sectors or institutions vis-á-vis external shocks that are forwarded directly or indirectly through linkages. These shocks relate to various exogenous variables, such as tax and subsidy rates, technological changes, or changes in tourism demand. Hence, in contrast to IO models focussing only on intermediate transactions, CGE models allow for feedback effects between sectors (André et al. 2010, Dwyer et al. 2004). These models are typically employed to study the effects of tourism-related policy decisions (e.g. large investments). Zhou et al. (1997) studied tourism's impact on the Hawaiian economy and identified the effect of resource allocation through CGE models. The work by Dwyer et al. (2003, 2004, 2006) further contributed to establishing CGE models in tourism research both on the national and regional levels. More recently, Inchausti-Sintes and Voltes-Dorta (2020) employed a CGE model to study the effects of tourism moratoria in the Canary Islands, while Pratt and Alizadeh (2018) investigated the impact of lifting embargoed sanctions on tourism in Iran. Interesting work by Mahadevan et al. (2017) quantified the effects of tourism taxation for reducing poverty and inequality in Indonesia.

The research community agrees on the methodological advancements of CGE models. However, despite its limitations, IO-based empirical studies continue to be published in tourism literature (Comerio & Strozzi 2019); this has mostly practical reasons given that IO tables are frequently updated and widely publicly available, unlike the SAMs required for CGE modelling (Hara 2008). A common understanding of the modelling assumptions and thus their broader comparability might also contribute to the continuous usage of IO models (Klijs et al. 2012). Nonetheless, applications of IO models should always include a critical discussion of underlying assumptions to alert the reader of limitations and potential overestimations. In sum, IO models are still considered valuable, especially if tourism impact studies are seen as indicative insights with limitations rather than as full representations of the economy being studied (Artal-Tur et al. 2020; Comerio & Strozzi 2019; Dwyer et al. 2004; Frechtling 2013; Klijs et al. 2012).

A review of recent IO literature in tourism shows that economic impact studies have been applied in differing geographical and analytical contexts. While the majority of studies focus on output and sales, employment and income effects are considered as well. The following study subjects analysed the impact of tourism on employment or income at the regional level: impacts of cruise ships on Spanish destinations, including Barcelona (Vayá et al. 2018) and Cortega (Artal-Tur et al. 2019); impacts of visitors to protected areas of Brazil (do Val Simardi Beraldo Souza et al. 2019); impacts of domestic and international tourism for the Central Finland region (Tohmo 2018); impacts of coastal tourism for Mississippi and Alabama, USA (Guo et al. 2017); and impacts of tourism in relation to environmental pollution in Beijing, China (Li et al. 2019). However, most studies remain at high aggregation levels and examine the 'how much' perspective of tourism's impact on employment or income (Lee 2009). Detailed disaggregation of tourism impact estimates are rare; exceptions include the studies of Lacher and Oh (2012), Daniels (2004), and Daniels et al. (2004). The latter broke down aggregated employment effects gained from a sports event into major occupational areas of specific tourism-related sectors; this made it possible to

estimate the required number of full-time equivalent (FTE) jobs for each occupational area and the respective income per occupation gained by hosting a sports event.

Baum et al. (2016a; 2018) lamented that the workforce focus has been ignored to a large extent within sustainable tourism development discourse. Although tourism economic impact studies play a considerable role in regional development, such studies are typically commissioned by policymakers and advisers and are used as support for developing tourism 'quantitatively' by economically justifying large-scale investments into tourism infrastructures (Crompton 2006). One can observe that 'mainstream' economic impact models fulfil their ideology-driven policy purpose by emphasising and (over)estimating tourism's contribution to economic growth (Crompton 2006; Higgins-Desbiolles et al. 2019). However, economic growth does not necessarily imply better livelihoods for the regional population (Bartolini & Sarracino 2014). A large share of the regional tourism workforce is characterised by low pay and precarious working conditions, especially if tourism workers are female or migrants (Baum et al. 2020; Ioannides & Zampoukos 2018; Mooney et al. 2017).

Scholars advocating socio-economic development have pointed out that sustainable regional development is primarily a social matter rather than an economic affair (Söderbaum & Brown 2010; Ulrich 2010). Economically developed countries pay a high social price for economic growth by increasing gaps between income classes, which subsequently negatively affects social cohesion (Komlos 2018). Scholars, who address societal problems argue that assumptions of mainstream economic science need to be reflected in a wider socio-economic and sustainable development discourse (Foxon et al. 2013; Sen 1992; Ulrich 2010). For example, Novy et al. (2013) and Nowlin (2017) recalled that economic growth is only a necessary *means* for development. Pure growth can neither be considered a sufficient condition for sustainable prosperity nor an exclusive policy goal. Therefore, instead of a narrow growth-oriented perspective, they advocate a multi-dimensional perspective on social, cultural, economic and political dimensions. To ensure sustainable development, policy goals should consider the possibility of changes in capital stocks, including economic, human, social and natural capital. Similarly, Söderbaum (2017) highlighted that a one-dimensional analysis ('monetary reductionism') is insufficient for understanding sustainable socio-economic development. Regrettably, the majority of tourism economic impact studies consist of one-dimensional approaches (Crompton 2006; Lee & Kang 1998). Nonetheless, Söderbaum and Brown (2010) stated that regional impact analyses should not totally neglect monetary dimensions. Rather, the focus should shift from growth-oriented indicators towards distributional aspects: so-called 'new-monetary measures' in particular 'recognize how monetary costs and benefits are distributed among stakeholders', and thus 'allow interrogation of, and challenges to market valuation methodologies' (p. 182).

Following these recommendations, our study proposes new monetary measures that provide socio-economic insights to assess the market value of a regional industry through consideration of income distribution effects among major occupational areas of the working population. In this regard, Dopfer et al. (2004) suggested a framework for analysing socio-economic activities not from the typical micro- or macro-perspectives but rather by considering the evolution of norms and rules at the meso-level as the 'heart of economic analysis' (p. 269). The authors argued that economies are complex adaptive social systems that constantly generate rules, norms and regulations, thereby creating unpredictable social realities that evolve over time. Therefore, for our study, a comprehensive analysis of tourism's socio-economic impacts incorporates institutional perspectives as well (Baum et al. 2016b; Dopfer et al., 2004).

## Methodology

To broaden traditional concepts of economic impact methodology, our study employed the following methodological approach. Firstly, we estimated tourism employment effects from a macro-economic perspective based on a regionalised IO model for Jämtland County during the period

from 2008 to 2016. Swedish IO tables are available on an annual basis; this allowed us to estimate tourism-induced effects for each particular year based on the underlying linkage structure for the respective year, including price and wage levels. As noted, the choice to apply an IO model over a complex CGE model was made due to limited resources which prevented us from developing a regional SAM. Since an IO model depicts the main activities and transactional flows of a complex economy (Wood and Meng 2020), IO-based results can still provide indicative insights into socio-economic impacts and implications for the regional tourism workforce. All measured impacts were deduced from official secondary data on regional tourist expenditures, which are also used to generate the National Tourism Satellite Account (TSA) by the Swedish government. The data was provided by the regional destination management organisation (DMO) 'Jämtland Härjedalen Tourism' (JHT 2019). Secondly, sectoral employment and income effects were disaggregated for the 25 most common occupations of the regional accommodation and food sector (Daniels 2004). Thirdly, secondary data on average income informed the estimation of income distribution effects for major regional tourism subsectors, expressed by Lorenz curves and Gini coefficients (de Maio 2007). Fourthly, qualitative analyses added institutional perspectives to contextualise and reflect on the quantitative findings through insights gained from interviews with representatives of the regional tourism industry (Khoo-Lattimore et al. 2017).

### *The regional economic impact model*

To capture the primary and secondary effects of regional tourism, our study employed a regionalised IO model. The IO table and its transaction matrix depict monetary flows for goods and services from sector *i* to sector *j* (Miller & Blair 2009). The Swedish IO table consists of 64 sectors based on Swedish standard industrial classifications (SNI; SCB 2018). The columns display monetary values of received inputs from all other sectors and their contribution to value-added categories (i.e. taxes, profits, and salaries and wages). The rows reflect the corresponding output to other sectors in the economy and to final demand. Thus, rows show how much each sector sells to other sectors, households and the government (Miller & Blair 2009). The IO model is expressed as

$$\Delta x \;=\; (I - A)^{-1} \times \;\Delta y$$

where *x* represents the vector of total sales and *I* is the identity matrix with value 1 for diagonal cells and zero values for the rest. The technology matrix *A* depicts the degree of inter-industry transactions. Each cell in matrix *A* represents the percentage share of total input expressed as (national) IO coefficient $\hat{a}_{ij}^{n}$ The inverse term $(I - A)^{-1}$ is also known as the Leontief inverse (Miller & Blair 2009). Finally, *y* stands for the vector of final demand. Thus, estimating the impact of tourism demand *y* on sales *x* requires the appropriate determination of *y*: both domestic and oversea imports of physical goods are subtracted from expenditure data to estimate *capture rates* (Stynes 1999).[1] Expenditure categories were aggregated to match the IO sectors. For Jämtland County, three sectors are representative for typical tourism consumption: *Accommodation and food services* (SNI I55-56); *Wholesale and retail trade* (SNI G45-47); and *Sporting services, amusement, recreation* (SNI R93).

To generate region-specific IO coefficients $\hat{a}_{ij}^{r}$ we applied non-survey-based methods using location quotients (LQ), a common approach for regionalising IO tables (Klijs et al. 2016). LQ typically use employment data as a proxy for estimating the size of the regional industry (Kowalewksi 2015). The simple location quotient (SLQ) depicts the relative size of the regional industry *i* compared to the national equivalent:

$$\mathrm{SLQ}_i \;= \frac{\mathrm{RE}_i/\mathrm{TRE}}{\mathrm{NE}_i/\mathrm{TNE}}$$

where RE and NE indicate regional and national employment in supplying sector *i*. TRE and TNE denote the respective regional and national total employment. If SLQ for industry *i* is $> 1$, the region is specialised in this industry. If SLQ $< 1$, the regional industry is not self-sufficient and therefore depends on imports. However, the SLQ does not consider cross-hauling, or the simultaneous import and export of commodities (Stevens et al., 1989). To address this issue, the cross-industry location quotient (CILQ) further compares the relative sizes of the regional selling industry *i* with the regional purchasing industry *j*, expressed as the ratios between $SLQ_i$ and $SLQ_j$.

$$CILQ_{ij} = \frac{SLQ_i}{SLQ_j} = \frac{RE_i/NE_i}{RE_j/NE_j}$$

In addition to the relative size of the supplying and purchasing sectors, the Flegg location quotient (FLQ) further considers the relative *size* of the region. In this way, the FLQ addresses the issue of underestimations of imports and, consequently, the overestimation of regional multipliers (Flegg & Webber 2000):

$$FLQ_{ij} = CILQ_{ij} \times \lambda \text{ for } i \neq j$$
$$FLQ_{ij} = SLQ_i \times \lambda \text{ for } i = j$$

where

$$\lambda = \left[\log 2 \ (1 + \frac{TRE}{TNE})\right]\delta$$

Lambda ($\lambda$) is a weighted measure for the region's relative size. The logarithmic transformation ensures that $\lambda$ is constrained to unity if TRE approximates TNE. The parameter $\delta$ takes values $0 \leq \delta > 1$. The larger a region is, the greater the input coefficient and the smaller the importation coefficient. Literature recommends $\delta = 0.3$ as an appropriate value for similarly sized regions, and this figure has been adopted for the Jämtland model. Using $SLQ_i$ for matrix diagonals ($i = j$) captures the size of the supplying sector *i*. Furthermore, intra-sectoral trade that was previously expressed in the national table becomes inter-regional trade in the regional table (Flegg & Tohmo 2013). Regional coefficients are obtained by multiplying national coefficients with corresponding FLQ values for FLQ $< 1$, while for cells with FLQ $\geq 1$ no adjustments are needed (Flegg & Webber 2000):

$$\hat{a}^r_{ij} = \begin{cases} a^n_{ij} \times FLQ_{ij} \text{ if } FLQ_{ij} < 1 \\ a^n_{ij} \text{ if } FLQ_{ij} \geq 1 \end{cases}$$

The Jämtland model is defined as an *open* model that considers direct and indirect effects on the regional production system. Household wages and consumption rates are treated as exogenous; thus, the model disregards induced effects to avoid the risk of overestimated economic impacts (Miller & Blair 2009). All required employment data for model building was obtained from the Swedish Statistical Central Bureau (SCB 2018).

### *Occupation-based modelling*

Inspired by the work of Daniels et al. (2004) and Daniels (2004), occupation-based modelling (OBM) allowed us to estimate employment and income effects disaggregated for specific occupational areas of tourism subsectors. As one of the core tourism sectors, the *accommodation and food* sector is the main focus of this study (SNI code I55-56; Hara 2008). Originally, OBM was used to estimate the effects of a temporary event on regional employment and income. As Crompton (1995) argued, employment multipliers should be interpreted with care, especially when applied to short-term events. Employment multipliers do not reveal how much employment is actually generated because not all existing employees are always fully utilised. Instead,

the IO-based employment effects refer to 'the number of full-time jobs needed over a year's time to produce the estimated level of output generated by this event' (Daniels et al. 2004, p. 80). However, this differs when studying the effects over multiple years. A long-term perspective offers insights on the regional industry's contribution to both generating and retaining regional jobs and income (Crompton 1995).

However, it is methodologically challenging to reliably estimate tourism's contribution to occupational positions, particularly in sectors where only a certain share of the output can be attributed to tourism activities (Frechtling 2013). OBM provides a promising method of coping with this issue. Technically, OBM considers the share of each occupational area on total sectoral employment (Daniels 2004). Utilising data on corresponding average income level per occupation allows for the estimation of income distribution within a sector. The occupation-based model is defined as

$$I_{o,s,t} = A_{o,s,t} \times R_{o,s,t} \times E_{s,t}$$

where $I$ is the total income effect resulting from the direct tourism impact for the occupational area $o$ in sector $s$ of year $t$. $A$ is the average occupation year-round income, and $R$ represents the sectoral employment share. $E$ is the employment effect estimated by the regional IO model (Daniels 2004). The occupational areas are defined by SSYK codes (Swedish Standard Classification of Occupations) ranging between 1–4 digits depending on the level of detail. For this study, we considered the 25 most common occupations in the three tourism-related sectors from 2008–2016. These occupations reflect approximately 95% of the IO-based employment estimates.

### *Measures of income distribution*

Income distribution effects among major tourism subsectors are shown by Lorenz curves and numerically summarised by Gini coefficients (de Maio 2007). The $x$-axis in Figure 1 indicates the cumulative share of wage-earners, while the $y$-axis represents the cumulative share of total income earned. The diagonal illustrates total distributive equality, which is achieved if every income class (i.e. occupational area) receives the same proportional share of total income in the sector. The skewed Lorenz curve indicates the level of inequality. The more distant the curve from the diagonal, the more unequal the income distribution, and vice versa. The Gini coefficient is directly proportional to the Lorenz curve and expresses the percentage share of the area $A$ to the total area of the triangle $A + B$, i.e. $\frac{A}{A+B}$. Thus, the closer the Gini coefficient is to 0, the more

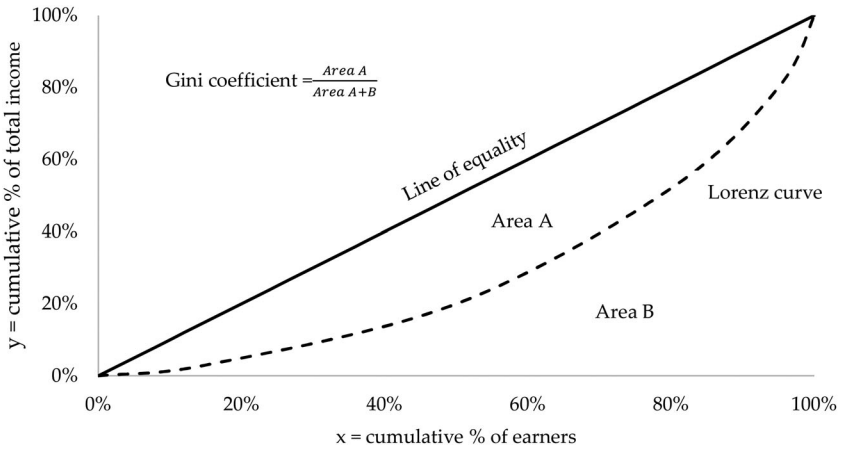


**Figure 1.** Lorenz curve and Gini coefficient.

strongly the Lorenz curve matches the diagonal, and thus the more equally income is distributed in the respective sector (ibid 2007).

### *Interviews with industry representatives*

The qualitative data are comprised of six in-depth interviews with major representatives from various regional tourism-related institutions conducted during the summer and autumn of 2018. The institutions were selected to gather data from private and public representatives of major institutional stakeholders in the regional tourism industry. The institutions included the regional division of the gastronomy association 'Visita', the regional DMO 'Jämtland Härjedalen Tourism', the municipality of the regional capital Östersund 'Östersunds kommun', the regional tourism association 'Region Jämtland Härjedalen', the regional labour union for the accommodation and food sectors 'Hotell och restaurang facket HRF', and the regional division of the public employment service 'Arbetsförmedlingen'.

The roles and duties of the interview partners related to tourism and gastronomy. The interview questions were designed to gain context-specific insights into employment and income as well as into contextual issues and development trends within the regional tourism industry. Interview partners were introduced to the above framework for measuring the socio-economic effects of tourism but were not informed of detailed quantitative results to avoid influencing their response behaviours (Hesse-Biber & Johnson 2015). Rather, the topics of discussion comprised current issues of regional tourism, including the employment and income situation in the regional tourism sector in terms of both shortcomings and benefits that certain regional jobs were experiencing. This approach enabled better understanding of employment and income effects across specific occupational areas within the regional tourism industry.

### *Study area*

The study area consisted of Jämtland County, including the provinces Jämtland and Härjedalen, located in the middle of Sweden. While Jämtland County is spatially the third largest Swedish region, it has the second smallest regional population. Nature-based attractions provide the main basis for the regional tourism industry, which is proportionally larger than in other Swedish regions. Tourism activities are concentrated in the capital Östersund, the winter sports destination Åre, as well as a number of small mountain destinations (JHT 2019). Tourism plays a significant role in the region's economy (Kronenberg et al. 2018), which speaks to its relevance for socio-economic development for the region.

## Results and discussion

The results section is structured as follows. First, the results of the conventional IO approach are presented for the period 2008–2016, followed by income inequality results from Lorenz curves and Gini coefficients. Third, results on employment and income effects per occupation provide a more nuanced and critical perspective on the development of the regional tourism workforce. Finally, findings are interpreted based on qualitative data gained from interviews conducted with major representatives of the regional tourism industry.

### *The socio-economic impact of tourism on the regional economy*

The supply-related analysis of multipliers reveals a substantial *decrease* of employment multipliers for all major tourism-related sectors over the nine-year period (Table 1).

Table 1. Percentage changes of employment multipliers to previous year.

| | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2008 – 2016 |
|---|---|---|---|---|---|---|---|---|---|
| **Wholesale and retail trade** *(G45–47)* | 3.6% | −4.4% | −5.2% | 1.6% | −0.4% | −5.0% | −4.4% | −2.4% | −15.7% |
| **Accommodation and food** *(I55–56)* | 1.2% | 0.4% | −4.9% | 2.4% | −0.4% | −4.1% | −2.6% | −6.9% | −14.1% |
| **Sporting services, amusement, recreation** *(R93)* | 0.3% | −4.0% | −6.1% | −2.8% | −3.7% | 1.5% | −2.2% | −3.5% | −18.9% |

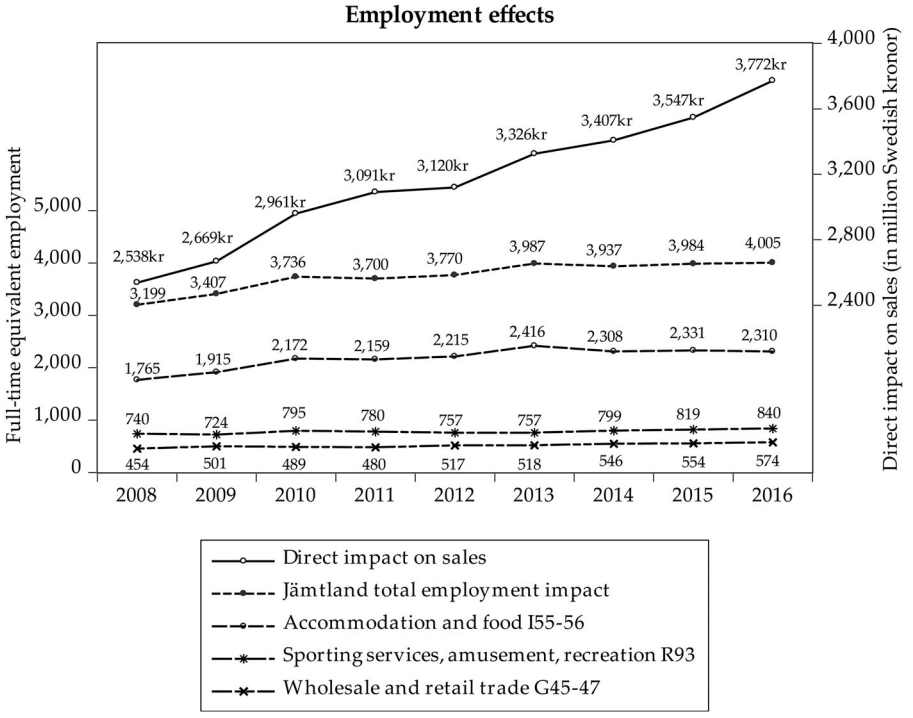


Figure 2. Sectoral employment effects.

This worrying trend is a clear signal that interlinkages between tourism sectors and other regional economic branches became weaker over time. On the one hand, this decrease implies that the regional tourism industry generated less and less employment in the wider regional economy (Hara 2008). In economic jargon, the industry became more labour efficient as fewer employees were capable of generating more sales output over time (Miller & Blair 2009).

On the other hand, the analysis shows that the direct impact from tourist expenditures on the industry's sales output constantly increased (Figure 2). This increase was due to the positive annual growth of tourist arrivals and spending in Jämtland County (JHT 2019). However, employment effects do not follow the same development. Figure 2 displays the patterns of employment effects separately for each of the three major tourism-related sectors and aggregated for the entire regional economy. In 2011, 2014 and 2016, tourism contributed less to regional employment compared to previous years; this was due to decreasing employment multipliers in which a smaller workforce was needed to generate more sales (Crompton 1995).

The development patterns of tourism's impact on sales and employment are particularly relevant for a regional economy that highly depends on tourism (Mottiar et al. 2018):

> We are a county with a lot of small businesses, regardless of the sector. This is because of the industry structure. We do not have big plants; we do not have big sawmills or similar industry. We differ in this way from other Swedish regions [...]. We are, in fact, more dependent on the tourism industry, and therefore have to make the tourism industry function as well as possible. (Regional tourism association representative)

A critical view of IO-based employment effects shows the one-dimensional and reductionist character of focussing on multipliers and growth-related indicators. Yet regional tourism officials seem to be interested in understanding the long-term sustainability of tourism impacts, particularly when the industry is considered crucial. Small destinations surrounded by a weak industrial structure rely most strongly on tourism because tourism activities became the main reason towns in remote and peripheral Swedish regions still exist (Thulemark 2017):

> The mountain destinations would probably not exist without tourism. The relevance [of tourism] is extremely high for all sorts of people to be able to stay … there are schools, there are public services … and actually that's what the [tourism] organisations are working with. To ensure tourisms development, to create jobs so that the society remains. They have the role of, let's say, a 'society builder'. (Regional tourism association representative)

Thus, regional tourism-related institutions play a crucial role in providing sustainable tourism employment (Foxon et al. 2013; Laws 2011); this is especially evident given that public and private institutions collaborate and reflect the employment-related needs and structural challenges of the regional tourism industry:

> We have that kind of supporting system in the regional society […]. I mean, the university is a very important resource to educate tourism employees, whom — hopefully – will be recruited. The branch associations work more specifically for their member companies; in turn, the regional tourism association collaborates closely with the branch associations. The regional DMO has people working with staff competence questions. So does the public employment service … yes, everyone has their own role. Sometimes things are discussed back and forth, but everyone works together as well as possible to provide the companies with the best opportunities. But in the end, companies decide their human-resource management for themselves. It is always better to have a good dialogue and to point out the challenges. (Regional tourism association representative)

Nevertheless, although continuous efforts are undertaken at the institutional level, the quantification of tourism's impact on employment indicates that the industry structure provides more and more unfavourable preconditions for generating regional employment. This trend clearly confirms the validity of criticism against contemporary regional development literature and its primary focus on the returns of invested capital, cost reductionism and efficiency (Söderbaum 2017; Ulrich 2010). Ultimately, markets are not capable of solving socio-economic problems; rather, markets are seen as the main reason for socio-economic distortions, especially in terms of increased income inequality (Komlos 2018).

### *Income distribution among tourism occupations*

We estimated the income distribution among occupational areas within regional tourism sectors through the OBM approach (Daniels 2004). While Lorenz curves in Figure 3 illustrate the level of income inequality in each sector, exemplarily for 2016, the development of Gini coefficients between 2008 and 2016 is presented in Figure 4.

Overall, for major regional tourism sectors, the level of income inequality remained relatively low during the analysis period, with Gini coefficients ranging between 0.12 (min) and 0.19 (max). Interestingly, the *wholesale, retail and trade* sector (G45-47) indicated, on average, higher *Gini coefficients*, although the total change between 2008 and 2016 remained minimal (+1%). The most negative developments occurred in the *sporting, amusement and recreation* sector (R93), where *Gini coefficients* increased by approximately 34% over nine years.[2] Finally, within the *accommodation and food* sector, unequal income distribution increased by approximately 10%, with the largest increases between 2008 and 2012, followed by stable development until 2016. The latter development can be explained by comparing the income levels of top and bottom income earners, respectively. The former enjoyed a relatively high increase in income of 8% from 2008 until 2013. In contrast, bottom income earners did not benefit from income increases, and their incomes stagnated with growth rates of 0.8% and 1.4% during the same period (Figure 5).

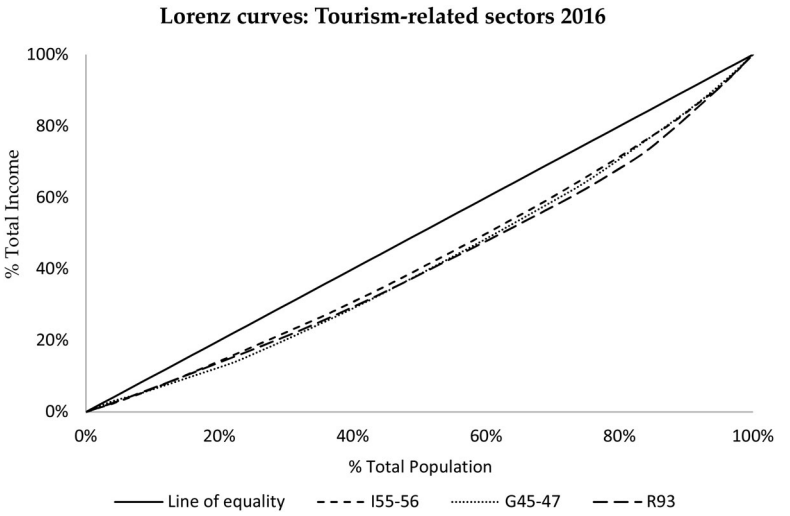


**Figure 3.** Lorenz curves of tourism-related sectors.

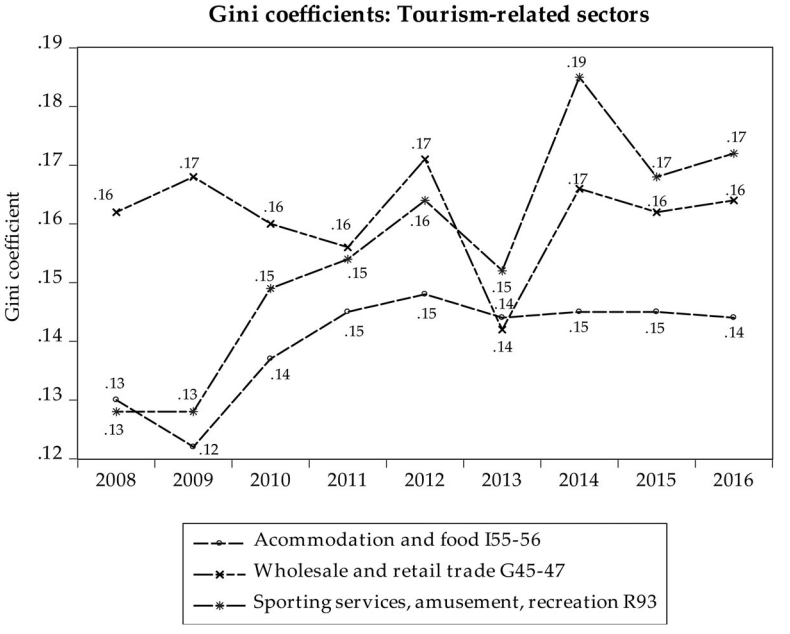


**Figure 4.** Gini coefficients for tourism-related sectors.

A convincing explanation for the development of bottom income earners is found in relation to trends of union membership rates. Jaumotte and Osorio (2015) argued that decreasing union membership rates have a strong negative effect on income distribution. Kjellberg (2017) analysed union membership rates in the Swedish *accommodation and food* sector and found dramatically decreasing membership rates, declining from 40% in 2008 to 28% in 2016. Tourism officials are well aware of declining union membership rates and have explained the trend as follows:

> The union is losing members. [ … ] Often people work in the tourism industry early in their career with the plan to continue working in another sector. Therefore, they do not join the union in the first place, or at least they leave the union when they change workplaces. So, that's [union membership] a little bit unpredictable.' (Labour union representative)

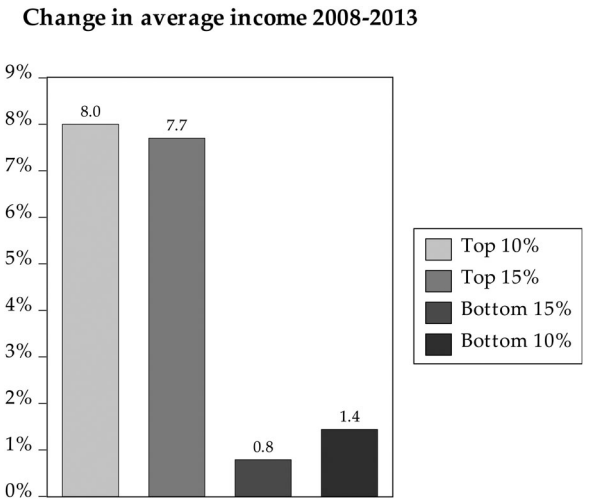


**Figure 5.** Top and bottom income earners in the *accommodation and food* sector.

Similarly, the representative of the public employment service argued that the regional 'tourism industry still has this reputation that employees think that they are working in tourism until they get a "real job"'.

As highlighted in the literature, the reputation of the hospitality industry, which is characterised by low entry barriers, high shares of poorly paid occupations and limited career opportunities, is still negative (Baum et al. 2020; Brandt 2018; Ioannides & Zampoukos 2018; Mooney et al. 2017).

### *The socio-economic impact of tourism on occupational areas*

The disaggregated employment and income effects for the 25 most common occupations in the *accommodation and food* sector (SNI I55-56) are categorised into eight occupational groups (Table 2). Group 1 includes manager and executive positions, Groups 2 and 3 require advanced educational qualifications (i.e. higher education). Group 4 comprises office workers in administration and customer service. Groups 5, 7, and 8 refer to vocational professions in various areas. Group 9 represents elementary occupations without educational requirements. Workers with miscellaneous elementary occupations not registered under a specific SSYK code are summarised under Group 0 (SCB 2019).

In 2016, tourism contributed 2,310 FTE jobs in the *accommodation and food* sector in Jämtland County. Figure 6 presents the breakdown of jobs per occupational area. The *x*-axis depicts the SSYK codes. The *y*-axis on the left numbers the total FTE jobs attributed to regional tourism ranked by frequency (in descending order from left to the right, as indicated by the bar charts). The *y*-axis on the right refers to weighted average annual income levels, as indicated by single dots. The straight horizontal line represents the weighted average income level for the entire *accommodation and food* sector in 2016, amounting to approximately 223,500 kr.

Out of the 2,310 FTE jobs in the *accommodation and food* sector, 10 occupations cover 85% of all employment (the first 10 from the left on the *x*-axis). Among those jobs, the majority earn less than the weighted sectoral average income, with the exception of three occupations representing industry-specific professions such as cooks (SSYK 512) and housekeeping supervisors (SSYK 515). Management and executive occupations (SSYK 17) display the third highest income level. As expected, the largest impact is revealed for elementary occupations without education requirements (SSYK 941, 911, 0). Notably, these three occupations cover approximately 40% of the total employment in the sector. Thus, it is not surprising that the income levels of these jobs

**Table 2.** Occupational areas in the *accommodation and food* sector.

| SSYK 2012 | Description |
|---|---|
| *1* | *Managers* |
| 11 | Politician, CEO, Senior official |
| 12 | Manager in finance, HR, marketing, sales, administration |
| 13 | Manager in IT, logistics, research, real estate, construction |
| 17 | Manager in other service occupations |
| *2* | *Occupations requiring advanced levels of higher education* |
| 23 | Advanced qualification in education |
| 24 | Advanced qualification in finance and management |
| *3* | *Occupations requiring higher education qualifications (or equivalent)* |
| 33 | Qualification in finance and management |
| 34 | Qualification in culture, and social work |
| *4* | *Administration and customer service clerks* |
| 41 | General administrative support and keyboard clerks |
| 42 | Customer service |
| *5* | *Service, care and shop sales workers* |
| 511 | Travel attendant, conductor and guide |
| 512 | Cook |
| 513 | (Head-) waiter and bartender |
| 515 | Building and housekeeping supervisor |
| 52 | Sales in retail |
| 53 | Personal care |
| 541 | Protective security |
| *7* | *Building and manufacturing workers* |
| 71 | Construction and civil engineering |
| 72 | Metal and repair |
| 761 | Butcher, baker and food processor |
| *8* | *Mechanical manufacturing and transport workers etc.* |
| 83 | Driver and mobile plant operator |
| *9* | *Elementary occupations* |
| 911 | Domestic, hotel and office cleaner |
| 941 | Food preparation assistant |
| 96 | Refuse worker and newspaper distributor |
| 0 | Miscellaneous |

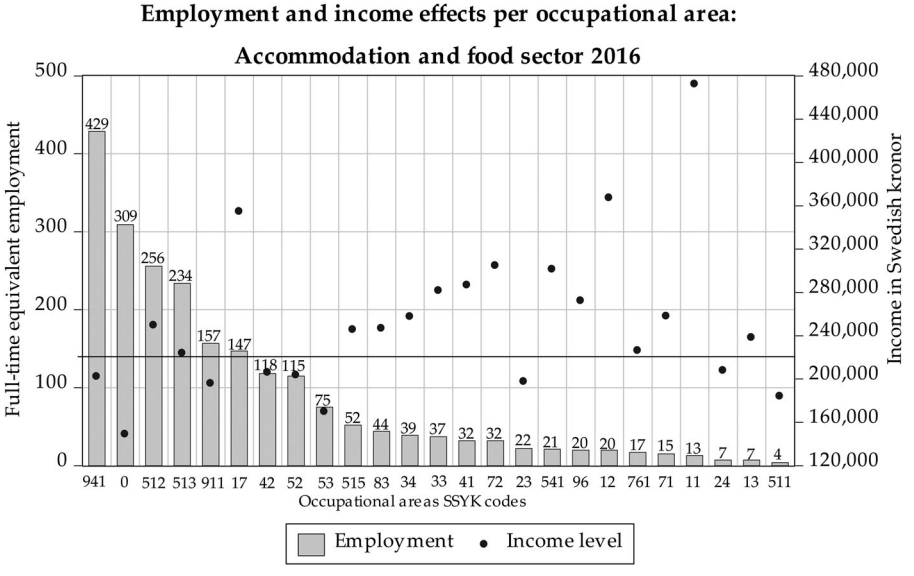


**Figure 6.** Employment and income effects per occupational area.

lie below the weighted sectoral average. Interestingly, however, the few remaining occupations (approximately 15%) that account for the lowest numbers of FTE employment in the sector (i.e. occupations listed to the right of SSYK 515) are characterised by relatively high-income levels

which are mostly above the sectoral average. Unsurprisingly, the highest income levels by far are revealed for the occupational group of politicians, CEOs and senior officials (SSYK 11; Mishel & Davis 2015).

Findings on tourism's socio-economic effects therefore seem to confirm the industry's reputation of employing a large share of elementary occupations. At the industry's institutional level, there are strong ambitions to change this situation by increasing the share of occupations that require higher education (Solnet et al. 2016). For instance, the representative of the gastronomy association argued,

> What we see is that the industry needs more people with higher education. The perception is that you do not need much education. And maybe we didn't back in the day, but now we do because there are different occupations within the industry that need higher education. Many people do not even know that there is a university here in town that offers a tourism program. In this regard, the industry is still behind when it comes to higher education. (Gastronomy association representative)

The ambition to increase the share of qualified workers is particularly important given the high number of micro- and small-sized tourism companies in the region (Brandt 2018). Indeed, the development of sustainably responsible tourism products is strongly dependent on leadership positions occupied by *ethically* responsible entrepreneurs and employees with high levels of education (Fuchs et al. 2021):

> If the companies want to develop, they must find people who want to be in leading positions and take more responsibility because existing employees or owners of small companies who do not have higher education might not have the time to think about how to approach company development. (Public employment service representative)

Despite the ambitions and initiatives of institutional representatives, our quantitative findings indicated an opposite development trend: the share of occupations that require higher education decreased over the nine-year period, dropping from approximately 17% in 2008 to 13% in 2016 (Figure 7). At the same time, the share of occupations without required higher education increased from 83% to 87%.

These findings confirm major concerns in the literature regarding the industry's reputation for low-income and low entry-level occupations (Baum et al. 2020). The negative trend should raise concerns among industry representatives regarding whether development is going in the desired direction towards higher qualifications and professionalisation (Fuchs et al. 2015). More precisely, the industry's need for more educated employees refers to its ambition to develop sustainably by reducing seasonality (Baum et al. 2016a) and by innovatively developing and marketing authentic niche experiences. This goal has important social implications, such as securing long-term employment through meaningful jobs.

> What we wish is to get more people into our villages so that people have year-round employment. The region needs to develop a tourism product that appeals to everyone. Some tourism companies in the region have already taken this step to create a workforce that is employed year-round. They take on more responsibility, are creative and, in the end, create a better product. (DMO representative)

Sustainable product development by offering authentic tourism experiences mirrors transformative processes at the individual level, such as the will to take social and ecological responsibility and the ambition to re-think and radically transform the meaning of hospitality and tourism work (Higgins-Desbiolles et al. 2019). As previous studies have shown, the required personal attitudes to act creatively and *benevolently* are most strongly embodied by lifestyle entrepreneurs, who builds a business to pursue a lifestyle instead of making profit (Fuchs et al. 2021; Mottiar et al. 2018; Zhou & Hoever 2014).

Regrettably, our findings identified elementary occupations as those jobs with major grievances, thereby confirming the grievances debated in the labour-related tourism literature (Baum et al. 2020; Ioannides & Zampoukos 2018). Figure 8 depicts tourism's long-term effects on the occupation type *domestic, hotel and office cleaner* (SSYK 911). The graph shows total income,

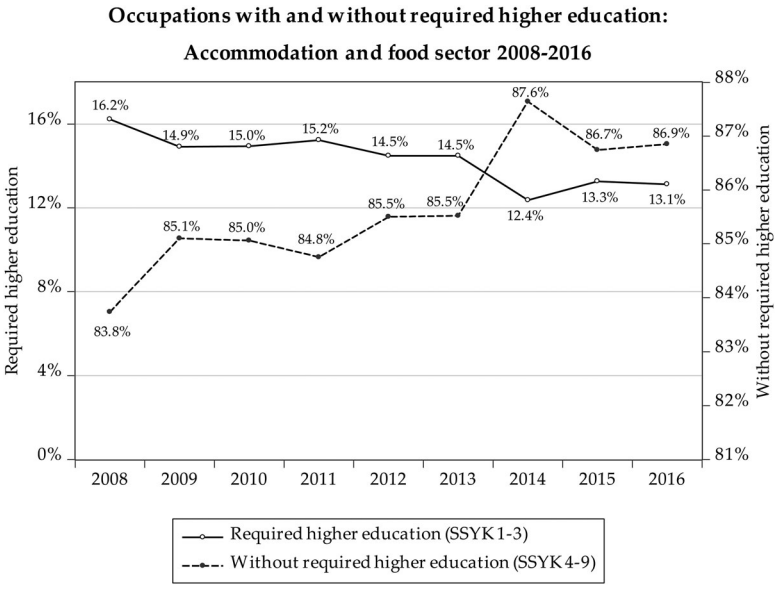


**Figure 7.** Occupations with and without required higher education.

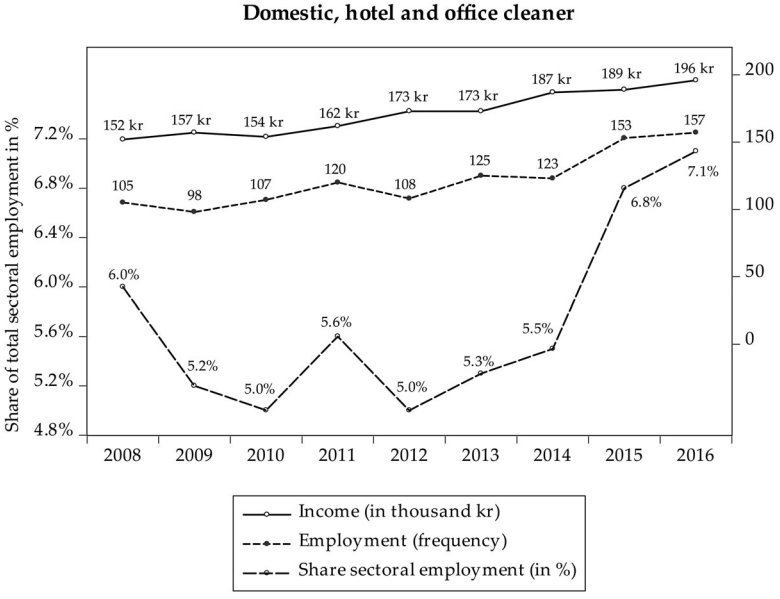


**Figure 8.** Employment and income effects for domestic, hotel and office cleaner (SSYK 911).

total number of FTE jobs generated in this group and the percentage share of this occupation to total employment in the accommodation and food sector.

The time series shows an upward trend of elementary occupations both in absolute numbers and in the relative share increase from approximately 5% to 7%. However, the income level of this occupation remains the second lowest throughout the sector, and other aspects regarding working conditions also remain precarious (Higgins-Desbiolles 2018; Poulston 2009).

> Cleaners usually never get more than the minimum salary of the collective agreement. It is like this for many workers. They start with the agreements' lowest salary and remain there. [ … ]. They very often never receive more than that. One can work in this sector and have a very good salary, but not as a cleaner. [ … ]

> If the employer follows the collective agreement, then I think there are no poor wages. We have quite good regulations in Sweden when the agreement is implemented. However, it is the employers' responsibility to follow the agreement. There are many employers who have collective agreements but never look at them or implement them … they do not even know what kind of rules are written in there. (Labour union representative)

For elementary occupations, the risk of being exploited, paid below union rate or being replaced is high (Poulston 2009). Workers' limited understanding of their own rights as guaranteed by collective agreements and employment laws is further harmed by language barriers (Kjellberg 2017; Solnet et al. 2016). The example of *domestic, hotel and office cleaners* confirms that work-related grievances are especially frequent for most vulnerable tourism occupations. Most importantly, traditional impact approaches focussing on aggregates overlook these socio-economic aspects, even when focussing on employment or income effects. Hence, we propose disaggregating employment and income effects as a prerequisite for studying the income distribution effects of tourism occupations; moreover, adding qualitative insights from institutional representatives might serve as a valuable step towards the realisation of the socio-economic development paradigm in tourism (Baum et al. 2016b; Higgins-Desbiolles 2018; Mottiar et al. 2018; Söderbaum & Brown 2010).

## Concluding discussion and research outlook

Locating the tourism workforce at the heart of sustainability and development discourse is crucial, particularly as the human dimension has been largely neglected in tourism sustainability literature (Baum 2018; Higgins-Desbiolles et al. 2019; Thulemark 2017). Although the study at hand was methodologically framed within the domain of tourism economic impact analysis (Comerio & Strozzi 2019), the impact of tourism was studied from a socio-economic perspective. As per the UN's Sustainable Development Goals 8 and 10 regarding sustainable economic growth, decent work, and reducing inequalities (UN 2015), the study's focus was on regional employment and income. Our study does not propose an entirely new way of analysing regional tourism impacts; concepts like multipliers and regionalisation techniques are still considered. However, inspired by the sustainable development paradigm (Elsner 2017; Söderbaum 2017; Ulrich 2010), we propose a methodologically extended approach that shifts the current growth-dominated focus towards more socio-economically relevant indicators of disaggregated occupation-based and income distribution effects (Daniels et al. 2004; Lee 2009; Schilcher 2007).

Firstly, our study revealed that increasing direct impacts of tourism demand on sales are not reflected in regional employment effects. In other words, increasing tourism demands do not translate into additional employment in Jämtland County, as indicated by decreasing employment multipliers. Inter-sectoral linkages weakened over time, thereby weakening the industry's capacity to contribute to the generation of region-wide employment (Miller & Blair 2009). In fact, decreasing employment multipliers imply that the industry became more *labour efficient*, meaning that a smaller workforce can be used to satisfy growing tourism demands (Cracolici et al. 2008). The increased adoption rate and usage of information and communication technology (ICT) to digitalise and automate previously labour-intensive tasks might have contributed to increased labour efficiency (Fuchs et al. 2010). This trend implies a socio-economically challenging efficiency dilemma. On the one hand, entry jobs provide income opportunities for the youth population. On the other hand, these jobs are likely to be replaced by automation, even supporting to eliminate undignified and exploitative jobs. However, in tourism and hospitality, personal encounters remain irreplaceable. Therefore, when improving efficiency, ICT should ideally act as convivial technology that supports workers in performing their tasks more efficiently while still maintaining their full autonomy (Gretzel et al. 2020). By contrast, 'manipulative technologies' create dependencies by reducing humans to machine-operators lacking any dignity (Samerski 2018). Thus, the mitigation of an overshooting of efficiency on the cost of the workers adds further

social meaning to the use of convivial ICTs. Notably, network science has shown that network effects occur due to creative social interactions between collaborating members (Fuchs & Baggio 2017). However, these network effects disappear if the focus remains on efficiency. The network falls apart as soon as neighbouring network members realise they are being instrumentalised for competitive and thus inherently socially *inferior* purposes (Clement et al. 2018).

The results further demonstrated generally low-income inequality in the regional *accommodation and food* industry, although the overall trend indicates slightly increasing income inequality. Particularly in the period from 2008–2013, average incomes of the bottom 15% of earners stagnated, while the share of occupations that do not require education consistently increased, implying that the number of people in low-income groups also steadily increased (Checchi 2001). Indeed, low income levels, seasonality, and unfavourable working conditions seem to discourage employees and result in high turnover rates among these occupations. While the share of collectively negotiated wages shrank due to decreasing union membership rates, newly hired employees were forced to start their careers at minimum wage levels (Jaumotte & Osorio 2015; Kjellberg 2017). These work conditions contribute to the industry's persistent reputation of low wages and low entry barriers (Baum 2015).

Despite various academic efforts and the para-industrial initiatives of institutions to improve workforce conditions in tourism and to transition regional tourism into sustainable, well-paid and more educated year-round occupations with opportunities for long-term careers, for Jämtland County, the share of elementary occupations increased over the study timeframe, accounting for approximately 40% of total employment in the *accommodation and food* sector in 2016; this signals the enduring importance of better analysing and improving the socio-economic conditions of regional tourism employment (Baum 2018; Mooney et al. 2017).

The main limitations of this study are the methodological assumptions inherent to IO models. The relatively simplified view of the regional economy *explicitly* considers neither price changes nor substitution effects, which makes it necessary to interpret the study results with care. However, we evaluated annually updated IO tables and emphasise that wages and prices are reflected *implicitly* as aggregated values for each respective year. Nevertheless, future research should apply more advanced economic impact models, such as CGE models (Burfisher 2017). In this way, cross-validated, improved and additional results can be gained that systematically reduce the risk of overestimated effects (Dwyer 2015). Furthermore, current advancements in developing regional TSAs could be incorporated in this framework. Tourism Satellite Accounts provide more detailed insights into tourism's economic contributions in different sectors of the regional economy (Wu et al. 2019). Additionally, the occupation-based analysis was highly dependent on SSYK codes lacking certain *categories* of tourism work, such as seasonal employment (Thulemark 2017). For future research, we suggest placing additional emphasis on institutional perspectives in order to deepen the understanding of context-specific rules, laws and legislations, as well as regional and supra-regional initiatives associated with governing the regional tourism workforce and attempting to improve its socio-economic conditions (Baum 2018; Higgins-Desbiolles et al. 2019). We hope that our proposed approach contributes to positioning the tourism workforce at the heart of regional development and tourism sustainability discourse.

## Notes

1. Capture rate reflects the share of expenditures that accrues to the region. For manufactured goods sold by the wholesale and retail trade sector, imports are deducted. Thus, only retail margins and regionally produced goods accrue regionally, with a capture rate of approximately 38%. All services accrue regionally where producer and purchaser prices are equivalent. (Huhtala et al. 2010; Stynes 1999).
2. It is important to recall that large shares of demand for these two sectors are attributed to non-tourism consumption, i.e. by regional households. To gain further insight into tourism's role in these sectors, regional Tourism Satellite Accounts (TSAs) should be consulted.

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