

Article

Love Thy Neighbour: Social Benefits and Port-City Relationships

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Abstract: As awareness of the negative externalities created by ports increases, and the perceived local benefits decrease, ports must find new ways to improve the local noneconomic benefits they provide if they are to obtain local support. This global survey collected data from 51 ports in 26 countries. The results highlight a recognition by port authorities that ports face increasing pressure from local residents to reduce their negative impacts and that they should seek to improve the public perception towards the port by increasing local benefits. At present, port information and social media (81%), port events (67%) and education (63%) are the most adopted options. There is a lack of evidence that these measures are effective in improving local perceptions. Maritime museums and public access show a positive association with increasing local awareness of the benefits a port provides, despite their lower levels of adoption (45%). Port centres are the least adopted option at present (29%) and can be expected to increase significantly, with a 43% increase anticipated between numbers of current and expected future centres. Education (14%), public access (13%) and maritime museums (4.5%) also show increases in levels of interest. Maritime museums and public access should be pursued as proven, effective options for improving local perceptions of ports, whilst port centres may provide a new focal point for port-related social and cultural activities.

Keywords: port cities; sustainability; social benefits; sustainable development; maritime museums; port centres



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1. Introduction

Ports create a range of economic, environmental and social impacts for their local areas. There has been a desire to encourage sustainable development in port cities [1]. Existing work has primarily focused on the economic and environmental aspects, with a lack of research conducted on the social impacts of ports for cities and local areas [2]. A search for academic work on the social benefits of ports will produce only a small number of relevant articles. If sustainable development in port cities is to be achieved, it is crucial that the social pillar of sustainable development is not neglected and ports generate more significant social benefits for their local communities. This paper introduces the background of this topic, illustrates the results of an online questionnaire and provides conclusions and recommendations for further work.

1.1. Background

Port cities have developed throughout history with the port at the centre of a city’s identity. The presence of a port has often shaped the adjoining city and its people. Many port cities have long histories of casual labour and develop large migrant communities. An excellent example of this is the port city of Liverpool, where the creation of the world’s first enclosed wet dock in 1715 was followed by considerable growth and an influx of migrants.

This led to the establishment of the oldest Chinese community in Europe [3] and large numbers of Irish and Welsh migrants, with 300,000 Irish migrants arriving in one year alone and an estimated 20,000 Welsh migrants arriving every decade between 1850 and 1910. Modern-day Liverpool has been shaped by this history, with 75% of residents being estimated to have Irish ancestry [4]. Many aspects of the city's identity, including its local accent [5], traditional food [6] and even political views [7], have been heavily influenced by the city's maritime history and migrant communities. Many of the city's iconic buildings, such as the Royal Albert Dock and the Port of Liverpool building, directly relate to the city's maritime heritage, with many of the newer buildings also being linked to its maritime history, such as the Maritime Museum [8] and the International Slavery Museum [9]. It is hard to imagine how the city and its people would have developed if the city had never been a port. This illustrates how the impacts of ports go far beyond the simple movement of goods and people and economic aspects. Historically, the link between the city and the port had been strong and a part of everyday life [10]; however, this relationship has faced many challenges.

Decreasing port employment, automation, mechanisation, increasing security and decreasing public access have reduced the role of the port in the lives of many port-city residents. Some port cities such as Liverpool entered decline due to declining port activity related to processes such as containerisation and global changes in trade patterns, leading to unemployment, inequalities and social issues [11]. In many cases, the recovery in these declining port cities has been led by touristic and cultural waterfront development [11], making use of the city's maritime history. This has been especially true in Europe and North America, as many port cities declined due to deindustrialisation.

Port-city residents are increasingly separated and disconnected from the port and its activity. However, inhabitants still have to face a port's negative externalities such as visual blight (i.e., reduced visual aesthetic amenity due to towering cranes and stacked containers), severance (separation of the city from its waterfront), pollution and traffic congestion. This process of decreasing local benefits of ports and declining local support has been termed demaritimisation [12]. If future port-city development is to be sustainable, it should seek to restore this relationship to its full potential, allowing the residents to gain more significant benefits from the port's presence. The reversal of this process can be achieved by working towards what has been termed in the literature as the societal license to operate (SLO) [13]. The SLO is defined by Pages Sanchez [14] as "fulfilling the expectations of stakeholders and local communities in dimensions that go beyond the creation of wealth". One way for ports to achieve this is to increase the so-called "soft values" they create. Van Hooydonk [15] defined soft values as the non-socioeconomic values, such as cultural, sociological, artistic and historical functions provided by seaports. Ports have underscored the importance of improving relationships with the local community. This was highlighted by a European Sea Ports Organisation study listing improving relations as number 5 in their top 10 environmental priorities list [16]. The OECD [17] identified key ways that ports can make a positive social impact for cities; these are port centres, port information and social media, port education, maritime museums, port events, public access and local goodwill.

1.2. Port Centres

A port centre is described by AIVP [18] as an interface between ports, cities and the inhabitants, where ports can communicate their work, ambitions, projects and careers. Port centres may provide information about port operations and the port's local benefits and improve port-city relations. This can help increase local support for a port's development initiatives. These centres can host school trips or educational visits. Examples include:

- FutureLand in Rotterdam, which provides information about the development of the port, provides boat tours and attracts 100,000 visitors per year [19].

- Chichester Harbour Education Centre, which works to encourage future generations to value and conserve Chichester Harbour by providing outdoor education to schoolchildren [20].
- The Port of Valencia's specialised training centres, which offer courses to schools and visitors in topics such as foreign trade, logistics, transport and warehousing, in order to provide an insight into the ports of Valencia, Sagunto and Gandía and the role they play in the national, regional and local economies [21].

Port centres may be a valuable tool for ports to help increase local awareness and appreciation of a port's value for the local area. It is difficult to find examples of port centres outside Western countries.

1.3. Information and Social Media

Ports can use social media accounts to raise awareness of their activities, goals and development initiatives and how ports create income, pursue innovation, use technology and improve the economy, helping to create a deeper level of understanding and connection with the local community. According to Maritime Executive [22], 50% of the world's top 50 ports have Facebook accounts and other forms of social media such as Twitter and Instagram. However, the engagement levels appear to be minor, with the vast majority of ports having only a few thousand or hundreds of followers. Improved social media usage may be a relatively simple and cost-effective way to increase local awareness of the port and improve local attitudes. Table 1 shows that even for some of the world's largest ports, the engagement levels with social media compared with the port-city population are small. This suggests that the potential impact of port social media on the local residents is limited.

Table 1. Ports and associated social media information [23–26]. Data correct as of July 2021.

Port	Total Facebook Likes	Total Twitter Followers	Total Instagram Followers	Port-City Urban Population
Southampton	7860	7128	670	254,361
Antwerp	19,639	17,000	10,400	1,047,613
Long Beach	28,331	3600	18,800	466,776
Rotterdam	1211	26,800	10,300	1,209,000
Hamburg	17,273	4767	3008	2,500,000
Helsinki	2089	1752	1842	1,400,000
Houston	8744	8083	2491	2,310,000
Vancouver	35,708	13,400	5567	2,606,351
Brisbane	2311	614	908	2,513,184
Mumbai	3074	5516	103	12,480,000
Valparaiso	1573	12,600	3649	295,113

1.4. Port Education

Ports can provide education for local people, such as school visits, courses, information provision and field trips. Examples of this are the Port of Rotterdam [27] and the Port of Melbourne [28], which use a range of educational material and projects to educate local children about the value of the port. This increases local benefits by providing educational opportunities for local people and raising awareness of the value of the port to the city. Again there appears to be a lack of data available in regard to this for ports outside Western countries.

1.5. Maritime Museums

Port cities seeking to generate greater engagement with, and appreciation of, their maritime heritage may choose to open maritime museums. These museums recognise the

city's identity as being inextricably linked with the port and the relationship with the sea. This provides additional local benefits such as employment and tourism whilst providing additional social and cultural benefits for the city's population. These museums can focus broadly on maritime heritage, such as London's National Maritime Museum [29]; on naval heritage, such as Portsmouth's National Museum of the Royal Navy [30]; or on a specific time, story or vessel, such as Dundee's Discovery Point, focusing on the story of the ship RRS Discovery [31]. Whilst maritime museums are found in many port cities in countries such as the UK or Denmark, they have been called the Cinderellas of the museum world by Davies [32] due to their absence in many port cities, especially in Asian port cities. However, this may have started to change since Davies' work in 2012, with new museums opening in Asia. An excellent example of this can be found in South Korea, with examples such as the Taean Maritime Museum opened in 2019 [33], the National Maritime Museum in Busan opened in 2012 [34] and Seoul's Battleship Park which opened in 2017 [35]. Greater involvement by port and city authorities in maritime museums may provide an additional tool for port authorities to improve relations with the local population and increase the local benefits of the port. There are numerous examples of cities taking an active role in encouraging this, such as Southampton's SeaCity Museum, originally established by Southampton City Council as a maritime museum [36].

1.6. Port Events

Events held in the port can improve relations with the local community. Events like this can increase local awareness of port operations and maritime heritage, whilst providing tourism for the local area benefiting local businesses. Examples of this are World Port Days [37], an annual festival held to promote the Port of Rotterdam, and the Southampton International Boat Show [38]. These events face an uncertain future in the short term due to the ongoing COVID-19 pandemic and social distancing measures, although this situation is somewhat remediated by the development and delivery of online events. However, they may prove to be a valuable tool for promoting awareness of a port in the future once these measures are relaxed. They generate considerable financial benefits for the local area, with the 2019 Southampton Boat Show generating GBP 31 million and attracting over 100,000 visitors [39]. Cultural events can also focus on the city or town's connection to the sea and the port, such as Falmouth's International Sea Shanty festival [40], Plymouth's Seafood and Harbour festival [41] and Liverpool's Pirate Festival [42]. Additional stakeholders can be involved in organising events like this, such as cultural and artistic organisations, the food and beverage industry or local community groups. Port authorities can also be involved in events that are not clearly linked to the port, such as the Associated British Ports (ABP) Southampton Marathon [43]. This can allow the port authority to play a proactive role in the community and generate additional local benefits for the port city. Port events can take a variety of forms and can be organised by a variety of stakeholders, and they can play an important part in creating a positive experience for port-city residents.

1.7. Public Access

Improving public access to a port can help reconnect the port with the city, allowing the public to view the port more closely. A good example is the port cycle event held in Hamburg [44], enabling public access to the port via 45 km of cycle routes. Port access has decreased due to rising security concerns, separating city residents from the port [45]. Events like Southampton Boat Show combine port events with public access, allowing visitors to see parts of the port city they may never have seen before. Improving port access may be an effective way of improving local attitudes towards the port. There would have been fewer barriers between the port and the local people in the past, and potentially this change has led to a growing sense of detachment between ports and their local populations.

1.8. Local Goodwill

Port authorities may seek to improve their local image via acts of goodwill, such as charitable donations, scholarships, volunteering or providing facilities for local people.

Ports may participate in other acts to improve their image in the local community (Table 2).

Table 2. Examples of local goodwill.

Port	Example
Southampton	Charity of the year [46]
Long Beach	College studentships for local students [47]
Los Angeles	Recreational facilities for local residents [48]
Houston	Local volunteering from port workers [49]
Felixstowe	Port community fund [50]

These acts can help compensate for a port's negative impacts and provide training and financial support. They form a part of a port's corporate social responsibility activities. These methods are important in helping to address the social aspect of sustainability, which has so far been neglected in port and port-city sustainable development research.

1.9. Research Aims

Existing research fails to bring all of these topics together and present a unified view of the social benefits provided by ports. This research aims to fill that gap and provide a clear view of the current state of measures for increasing the social benefits of ports globally and an insight into how this may change in the future, as well as providing recommendations. It aims to do so by answering the following research questions:

- Which measures for increasing social benefits are currently popular?
- Which measures for increasing social benefits are likely to be popular in the future?
- In what ways do ports want to support these measures?
- What are the views of ports towards the issue of social benefits?

2. Materials and Methods

This study was conducted by distributing an online questionnaire to professionals employed by port authorities in 26 countries (Albania, Australia, Belgium, Belize, Brazil, Egypt, Canada, Chile, China, Finland, France, Japan, Latvia, Morocco, Namibia, Netherlands, Portugal, Romania, Saudi Arabia, Singapore, South Korea, Spain, Sri Lanka, Togo, the United Kingdom and the United States).

Ports were initially targeted using lists of the world's largest ports according to cargo tonnage [51], TEU [52] and passenger numbers [53–55]. Additional ports were included if relevant professionals with suitable expertise were found during the search process, regardless of their size. The final sample contained 16% of the world's top 100 container ports [52], 10% of the world's top 100 largest cruise ports [55] and a geographical distribution covering a large variety of countries at varying levels of development.

The research questions were developed using the PESTEL framework [56] to target the key areas that arose from the literature review, which was then reviewed by the British Ports Association. This review acted as a small-scale pilot test to highlight how the questionnaire could be improved before it was sent out. Professionals with adequate expertise in port authorities were identified in numerous ways, such as using port authority websites and the professional networking website LinkedIn. In addition, the British Ports Association (BPA) distributed the questionnaire to UK ports. Participants linked to a port's LinkedIn page were approached if their role in the port was related to management, operations, planning, engineering or the environment. In some cases, the final participant was recruited via recommendations from the person who was contacted initially. The questionnaire contained political, economic, social, technological, environmental and legal (PESTLE)

sections. The PESTLE framework was chosen as an appropriate tool for conducting a broad fact-finding exercise and has been helpful in analysing internal and external factors [56], which is highly important for work on ports. The questionnaire collected data from the summer of 2019 until the spring of 2020. This was to ensure a sufficient number of responses were gained from appropriate experts.

The data were analysed using GDP per capita of host countries, as well as port size using the Southampton System [57]. Chi-square was used to analyse responses for current and future levels of adoption of the measures included in the study. The chi-square-based measure of association phi coefficient was used as a measure of association due to the low sample size and occasional cells with a count of less than 5 [58]. A phi of >0.5 was considered a high association, 0.3–0.5 a medium association and 0.1–0.3 a low association. Yates' correction was used to provide continuity corrected chi-squared values and p values for cases with low cell sizes or sample counts. Yates' correction's effectiveness is disputed, with some sources saying it tends to be too conservative [59]. It is, however, provided as an extra level of scrutiny.

The answers to the following statements were also analysed:

Please rate your level of agreement with the following statements:

- It is important for the port that the local population is knowledgeable about the port.
- It is important for the port to create benefits for the local population.
- The local population is aware of the benefits the port provides.
- The attitude of the local population towards the port is positive.
- The port is interested in improving the attitude of the local population towards the port.
- The port feels under pressure from local residents to reduce its negative impact.

These responses were recorded on a Likert scale (1–5); however, responses were converted to a simple yes or no to make analysis using chi-squared possible by increasing the cell counts. The mid-point on the Likert scale was categorised as a “no” as it (conservatively) shows a lack of agreement with the statements, so this analysis focused on identifying the frequency of positive responses. This was then analysed using chi-squared following the same method outlined earlier. All of the statistical analysis was undertaken using Statistical Package for the Social Sciences (SPSS) software [60], and the findings which were significant at the 95% confidence level are presented.

3. Results

Response levels for questions varied, with a maximum of 51 participants and a minimum of 33 participants responding per question. This is a sufficient number of participants for research into ports and compares with the sample size of other similar studies such as that of Moeremans and Dooms [13].

Table 3 shows the levels of support for a range of statements relating to the social benefits of ports. There is a strong consensus that the local population should be knowledgeable about the port and that the port should create benefits for the local population, with 47 (96%) respondents agreeing or strongly agreeing in both cases. The majority of ports are interested in improving the local attitudes towards the port (39, 89%) and also feel under pressure from local residents to reduce their negative impacts (33, 67%). However, there is a lack of consensus about whether local populations are aware of the benefits ports provide and whether or not their attitude towards the port is positive. Overall negative views are more common regarding whether or not the local population is aware of the benefits the port provides, with 22 (46%) respondents saying they strongly disagree or disagree, compared to 19 (40%) who agree or strongly agree.

The current levels of adoption and future levels of interest in various measures for increasing local social benefits are presented in Table 4. Port information and social media, port events and education are the most popular measures, with 39 (81%), 32 (67%) and 30 (63%), respectively, of the responding ports currently adopting them. Maritime museums and public access have been adopted by just under half of the sample (45%). Port centres

are currently the measure with the lowest levels of adoption, at just 29%. Port centres see the biggest increase in interest, with a 43% increase between current adoption and future level of interest. Education and public access see increases of 14% and 13%, respectively, whilst maritime museums increase by 4.5%. Port events and port information and social media see decreases of 6% and 5%. The sample size dropped from 48 during the current levels of adoption questions to 44 during the future levels of interest questions, which should be taken into consideration.

Table 3. Responses to statements about the social benefits of ports.

Statement	Total Responses	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
It is important for the local population to be knowledgeable about the port	49	0 (0%)	1 (2%)	1 (2%)	22 (45%)	25 (51%)
It is important for the port to create benefits for the local population	48	0 (0%)	0 (0%)	1 (2%)	15 (31%)	32 (67%)
The local population is aware of the benefits the port provides	48	7 (15%)	15 (31%)	7 (15%)	16 (33%)	3 (6%)
The attitude of the local population towards the port is positive	47	2 (4%)	9 (19%)	17 (36%)	15 (32%)	4 (9%)
The port is interested in improving the attitude of the local population towards the port	47	1 (2%)	4 (9%)	3 (6%)	18 (38%)	21 (45%)
The port feels under pressure from local residents to reduce its negative impact	48	0 (0%)	8 (17%)	7 (15%)	26 (54%)	7 (15%)

Table 4. Current levels of adoption and future levels of interest.

Method	Current Adoption Levels		Future Levels of Interest		Percentage Change
	Yes	No	Yes	No	
Port centres	14	34	20	24	43
Port information and social media	39	9	37	7	−5
Port events	32	16	30	14	−6
Maritime museums	22	26	23	19	4.5
Education	30	18	34	10	13
Public access	22	26	25	20	14

The future levels of interest in adoption are illustrated in more detail in Table 5. Port information and social media remain the most popular option, followed by port events and education. Many of the ports that responded and are recorded as a "no" in Table 4 for future adoption do not have a negative opinion of the measures, simply neither interested nor disinterested. Public access, port centres and maritime museums record the largest number of negative responses (9, 8 and 6). These are, however, a minority viewpoint within the sample. Neither interested nor disinterested was the most popular response for maritime museums.

The levels of association between current levels of adoption of the various measures are shown in Table 6. Continuity correction has been left blank when it was not required.

There is a potentially statistically significant relationship between the adoption of port centres and the use of education. However, this relationship is not significant when the continuity correction is used. There is a statistically significant relationship between port events and public access, which remains significant with the continuity correction.

Table 5. Levels of interest in encouraging methods for increasing social benefits of ports in the future.

Method	Very Disinterested	Disinterested	Neither Interested nor Disinterested	Interested	Very Interested
Port centres	4	4	8	15	5
Port information and social media	1	0	5	20	11
Port events	2	1	5	22	8
Maritime museums	3	3	13	10	9
Education	2	0	7	17	11
Public access	5	4	8	10	10

The association between interest in the future adoption of one measure and the adoption of another area is shown in Table 7. Interest in port centres is associated with increased interest in port information and social media, maritime museums and public access when the continuity correction is used. Without the continuity correction, there is an association with all of the other measures. Port information and social media show a statistically significant association with all of the measures except for maritime museums. Port events show a significant association with information and social media, as well as education. When the continuity correction is not used, there is also an association with port centres. Maritime museums show an association with port centres and public access, with the association with public access being especially strong (ϕ 0.69). When the continuity correction is not used, there is also an association with education. When the continuity correction is not used, education shows an association with all of the measures except maritime museums; however, with the continuity correction, there is only an association with information and social media and public access. Public access shows an association with all of the measures, except for port events.

The current levels of adoption and their association with an interest in future adoption is shown in Table 8. There is a potentially significant association between ports currently implementing public access to the port and future interest in port centres. However, this significance is lost when the continuity correction is applied. In all other cases, there are no statistically significant relationships.

The current methods for supporting measures to increase local social benefits are presented in Table 9. Information provision is the most frequently used method, followed by access to the port. Financial support is the least popular option. The most popular option in all cases is to use each measure of support frequently.

The preferred methods for supporting various measures for increasing local social benefits are presented in Table 10. Overall information provision is the most popular option, being the preferred option for port centres, information and social media, maritime museums and education. Unsurprisingly, port access is the preferred way to support public access to the port. Despite being the most unpopular method overall, financial support is the preferred method for ports to support port events.

The associations between port grouping in terms of size using the Southampton System and the presence of measures for increasing local social benefits reveal a statistically significant association between the presence of port events and education and increasing port size. This is presented in Table 11. During the analysis, there was no association between the GDP per capita of the host country and the adoption of any of the measures.

Table 6. Current levels of adoption and associations between measures.

	Current Levels	Port Centres	Port Information and Social Media	Port Events	Maritime Museums	Education	Public Access
Port Centres	Chi-square		2.735	3.774	0.009	4.644	1.642
	Continuity correction		1.089	2.423		3.037	0.847
	Phi		0.297	0.349	0.017	0.387	0.23
	Sig		0.98	0.052	0.925	0.031	0.2
	Continuity correction		0.297	0.12		0.081	0.357
	N		31	31	31	31	31
Port Information and Social Media	Chi-square	2.735		0.002	2.398	2.398	0.444
	Continuity correction	1.089		0	0.871	0.871	0.003
	Phi	0.297		0.008	0.278	0.278	0.12
	Sig	0.98		0.967	0.121	0.121	0.505
	Continuity correction	0.297		1	0.351	0.351	0.953
	N	31		31	31	31	31
Port Events	Chi-square	3.774	0.002		0.864	1.553	5.907
	Continuity correction	2.423	0.08		0.292	0.652	4.186
	Phi	0.349	0.008		0.167	0.224	0.437
	Sig	0.052	0.967		0.353	0.213	0.015
	Continuity correction	0.12	1		0.589	0.42	0.041
	N	31	31		31	31	31
Maritime Museums	Chi-square	0.009	2.399	0.864		0.087	0.883
	Continuity correction		0.871	0.292		0	
	Phi	0.017	0.278	0.167		0.053	0.169
	Sig	0.925	0.121	0.353		0.768	0.347
	Continuity correction		0.351	0.589		1	
	N	31	31	31		31	31
Education	Chi-square	4.644	2.896	1.553	0.087		0.86
	Continuity correction	3.037	1.015	0.652	0		0.267
	Phi	0.387	0.306	0.224	0.053		0.167
	Sig	0.031	0.08	0.213	0.768		3.54
	Continuity correction	0.08	0.314	0.42	1		0.605
	N	31	31	31	31		31
Public Access	Chi-square	1.642	0.444	5.907	0.883	0.86	
	Continuity correction	0.847	0.003	4.186		0.267	
	Phi	0.23	0.12	0.437	0.169	0.167	
	Sig	0.2	0.505	0.015	0.347	3.54	
	Continuity correction	0.357	0.953	0.041		0.605	
	N	31	31	31	31	31	

Table 7. Levels of interest in future adoption associations between measures.

	Future Interest	Port Centres	Port Information and Social Media	Port Events	Maritime Museums	Education	Public Access
Port Centres	Chi-square		6.359	5.04	5.490	5.044	7.3
	Continuity correction		4.134	3.299	3.934	3.299	5.46
	Phi		0.453	0.403	0.421	0.403	0.485
	Sig		0.012	0.025	0.019	0.025	0.007
	Continuity correction		0.042	0.069	0.047	0.069	0.019
	N		31	31	31	31	31
Port Information and Social Media	Chi-square	6.359		11.243	1.92	20.44	8.254
	Continuity correction	4.134		7.668	0.8	15.5	5.656
	Phi	0.453		0.602	0.249	0.812	0.516
	Sig	0.012		0.001	0.165	0.00	0.004
	Continuity correction	0.042		0.006	0.369	0.00	0.017
	N	31		31	31	31	31
Port Events	Chi-square	5.044	11.243		1.422	6.178	3.23
	Continuity correction	3.299	7.668		0.581	3.888	1.855
	Phi	0.403	0.602		0.214	0.446	0.323
	Sig	0.025	0.001		0.233	0.013	0.072
	Continuity correction	0.069	0.006		0.446	0.049	0.173
	N	31	31		31	31	31
Maritime Museums	Chi-square	5.490	1.92	1.422		4.210	14.85
	Continuity correction	3.934	0.8	0.581		2.631	12.173
	Phi	0.421	0.249	0.214		0.369	0.692
	Sig	0.019	0.165	0.233		0.040	0.000
	Continuity correction	0.047	0.369	0.446		0.105	0.000
	N	31	31	31		31	31
Education	Chi-square	5.044	20.44	6.178	4.210		12.519
	Continuity correction	3.299	15.5	3.888	2.631		9.629
	Phi	0.403	0.812	0.446	0.369		0.635
	Sig	0.025	0.00	0.013	0.040		0.000
	Continuity correction	0.069	0.00	0.049	0.105		0.002
	N	31	31	31	31		31
Public Access	Chi-square	7.3	8.254	3.23	14.85	12.519	
	Continuity correction	5.46	5.656	1.855	12.173	9.629	
	Phi	0.485	0.516	0.323	0.692	0.635	
	Sig	0.007	0.004	0.072	0.000	0.000	
	Continuity correction	0.019	0.017	0.173	0.000	0.002	
	N	31	31	31	31	31	

Table 8. Current levels of adoption and association with levels of interest in future adoption.

	Current vs. Future	Port Centres	Port Information and Social Media	Port Events	Maritime Museums	Education	Public Access
Port Centres	Chi-square	4.014	0.064	0.019	0.313	0.019	0.009
	Continuity correction	2.697	0.000	0.000	0.039	0	0
	Phi	0.360	0.045	0.025	−0.1	0.025	−0.17
	Sig	0.45	0.8	0.889	0.576	0.889	0.925
	Continuity correction	0.101	1	1	0.843	1	1
	N	31	31	31	31	31	31
Port Information and Social Media	Chi-square	0.301	0.727	0.969	0.0444	3.693	0.834
	Continuity correction	0	0.001	0.066	0.003	1.428	0.089
	Phi	−0.099	0.153	−0.177	−0.120	0.345	0.164
	Sig	0.583	0.394	0.325	0.505	0.055	0.361
	Continuity correction	1	0.979	0.797	0.953	0.232	0.766
	N	31	31	31	31	31	31
Port Events	Chi-square	2.761	2.1	2.562	0.015	0.465	0.394
	Continuity correction	1.631	0.859	1.302	0	0.049	0.057
	Phi	0.298	0.260	0.287	−0.022	0.122	0.113
	Sig	0.097	0.147	0.109	0.901	0.495	0.530
	Continuity correction	0.202	0.354	0.254	1	0.824	0.811
	N	31	31	31	31	31	31
Maritime Museums	Chi-square	0.267	0.009	0.003	1.551	0.003	1.146
	Continuity correction	0.023	0	0	0.776	0.00	0.493
	Phi	−0.093	0.017	−0.010	0.224	−0.010	0.192
	Sig	0.605	0.924	0.955	0.213	0.955	0.284
	Continuity correction	0.879	1	1	0.378	1	0.483
	N	31	31	31	31	31	31
Education	Chi-square	3.058	0.627	0.036	0.512	1.373	0.288
	Continuity correction	1.790	0.055	0	0.093	0.464	0.015
	Phi	0.314	0.142	0.034	0.128	0.210	0.096
	Sig	0.080	0.428	0.849	0.474	0.241	0.592
	Continuity correction	0.181	0.815	1	0.761	0.496	0.904
	N	31	31	31	31	31	31
Public Access	Chi-square	3.888	0.322	0.111	2.637	0.278	3.895
	Continuity correction	2.6	0.006	0	1.599	0.009	2.590
	Phi	0.354	0.102	−0.060	0.292	0.095	0.354
	Sig	0.049	0.570	0.739	0.104	0.598	0.048
	Continuity correction	0.107	0.937	1	0.206	0.923	0.108
	N	31	31	31	31	31	31

Table 9. Current ways ports use to support methods for increasing social benefits.

Type of Support	Frequency of Support				
	Never	Rarely	Occasionally	Frequently	All the Time
Financial	5	2	11	19	6
Information	1	3	5	23	12
Access	3	4	9	17	11
Organisation	3	1	11	17	9

Table 10. Preferred method of support for each measure for increasing social benefits.

Measure for Increasing Social Benefits and Preferred Method of Support	Financial Support	Information Provision	Port Access	Organisation	No Interest
Port centres	11	20	16	13	9
Port information and social media	14	29	8	15	2
Port events	21	17	15	16	3
Maritime museums	7	22	9	9	10
Education	14	22	21	16	4
Public access	8	13	24	12	11
Total	75	123	93	81	39

Table 11. Port grouping (Southampton System) and presence of measures.

	Port Centres	Port Information and Social Media	Port Events	Maritime Museums	Education	Public Access
N	39	39	39	39	39	39
Chi-square	5.8	2.6	9.1	3.5	9.8	4.2
Phi	0.38	0.26	0.48	0.3	0.5	0.33
Significance	0.13	0.47	0.03	0.32	0.02	0.24

The associations between responses to the question "Do you feel the local population is aware of the benefits the port provides?" and current levels of adoption of the various measures are shown in Table 12. This shows that the current adoption of maritime museums and the current adoption of public access are associated with greater perceived awareness of the local benefits the port provides.

Table 12. Associations between perceived awareness among the local population of the benefits of the port and current adoption of the measures.

	Port Centres	Port Information and Social Media	Port Events	Maritime Museums	Education	Public Access
N	35	35	35	35	35	35
Chi-square	0.486	0.053 *	2.654 *	4.644	1.13 *	3.84
Phi	0.118	0.130	0.338	0.364	0.245	0.331
Significance	0.48	0.818 *	0.103 *	0.03	0.147 *	0.05

* Continuity correction was applied.

4. Discussion

This paper aims to illustrate the current situation regarding measures for providing social benefits from ports and how this may change in the future, as well as the views of the ports towards providing social benefits. This research is the first time the levels of adoption and levels of interest in these measures for increasing social benefits have been investigated, so there is a lack of research to compare the findings with in many cases.

This work highlights how there is a global recognition that ports should seek to improve local attitudes towards ports and a sense of increasing pressure from local residents to reduce the negative impacts of ports (Table 3). This shows for the first time in the literature that the finding of the European Sea Ports Organisation [16] that improving relations with the local community is a top 10 priority of ports appears to be supported globally and is not specific to Europe. The desire to achieve a so-called societal license to operate, as discussed in work such as that of Moeremans and Dooms [13], appears to therefore be a global desire. There is a strong global consensus that ports should create additional local benefits and that the local population should be knowledgeable of these benefits. This highlights the potential role ports can play globally in encouraging more sustainable development in port cities by increasing the local social benefits they provide.

However, the respondents in this study show a lack of consensus about the awareness of the local population towards these benefits (Table 3). There is a lack of consensus about whether or not the local population has positive views of the port, with a slightly larger number of ports giving a negative response. This raises the issue of demaritimisation [12], suggesting that it is a global issue, which highlights the progress required if ports are to improve these local attitudes. The desire to increase local benefits and awareness of these benefits is encouraging; however, the data highlight that considerable progress still needs to be made.

The data show that the majority of ports have adopted one or more of these measures, with port information and social media (81%), port events (67%) and education (63%) being the most widely adopted methods at present. This is the first time the popularity and levels of adoption of these measures have been identified. These options have been the most desirable to date, potentially due to port information and social media and education being relatively low-cost options that the port can support using the most popular method of support (information provision) shown in Table 10. Port events are also the only option for which financial support is the preferred option of support (Table 10), which is a new finding. Port events are often annual events that may have a lower financial cost than more permanent options such as maritime museums or port centres, which require an initial investment as well as ongoing operational costs. The lack of awareness of the benefits the port provides highlighted in Table 3, however, suggests that ports may feel the methods they are currently using are not working in the desired way, and perhaps other methods may be more effective at increasing local awareness of the benefits the port provides.

Maritime museums and public access have both been adopted by just under 45% of the sample. This supports the work of Davies [32], who found that maritime museums were absent in the majority of port cities globally. Despite increases in some countries such as South Korea since the work of Davies [32] was conducted, globally maritime museums are still lacking in adoption. Maritime museums and public access may face additional obstacles because maritime museums may be more the responsibility of city authorities than port authorities, and public access may create safety and security concerns. Historical port development may also influence this, with maritime museums being more likely in ports with long histories, making them less likely in port cities that have developed in a very short space of time, such as Shenzhen. Maritime museums and public access are the only two options that are associated with increased awareness of local benefits (Table 12). This suggests these two measures may be effective at achieving the goal of improving local attitudes towards the port, despite the views (Table 5) that these two measures are among the most undesirable for ports. However, more work needs to be undertaken to analyse this impact on local awareness further due to the large number of factors potentially involved.

Port centres are the least adopted option (29%) and also the measure with the most potential for growth, seeing a 43% increase between current and future levels. This suggests that globally there may be an increase in port centres in the future, and it is, therefore, important to find ways to maximise the benefits they can provide for the local population. One way to achieve this may be to use port centres as focal points where many of the other methods such as port information, education, port events, public access and elements of maritime museums could take place. This may help make the port more accessible to the local community by having a one-stop shop for those who wish to access it.

Education (14%), public access (13%) and maritime museums (4.5%) show increases in interest, whereas port information and social media and port events show decreases of 5% and 6%. This may be due to the levels of adoption of port information and social media already being very high, whereas the desirability of port events in the near future may have been impacted by the COVID-19 pandemic. It may also be due to a perceived lack of benefits provided by them, with Table 12 showing that ports that have already adopted these measures are no more likely to report higher levels of local awareness of the benefits the port provides than those that have not adopted them.

Table 5 illustrates how the views of many of the measures are positive, with only a minority of respondents giving negative responses. Neither interested nor disinterested is, in most cases, a more common response than a negative response, with the exception of public access. This suggests that if other stakeholders in port cities feel strongly about the benefits of a particular measure, such as maritime museums, then it may be possible to convince ports to participate. Table 10 shows that ports are least likely to support these measures by financial support, suggesting that if other stakeholders can assist financially, they may be able to encourage ports to participate more with these measures. This could be city authorities or port-related companies, such as cruise operators, ferry operators or container shipping companies.

Port information and social media are set to remain the most popular option in the future (Table 5), followed by port events and education. Considering that port authorities have mixed views on the awareness of the benefits of the port among the local population (Table 3), the lack of association with increased awareness (Table 12), and that these three measures are already the most adopted options, it may be the case that they are not an effective option for improving local attitudes. Further work should therefore be done on how to maximise the benefits of these measures so that the considerable opportunities they present do not go to waste. This is particularly true of social media, which has the potential for enormous outreach with relatively little investment from the port authority.

Some measures may be complementary with other measures, such as port events with public access and port centres with education (Table 6). This suggests port authorities may choose a selection of measures to suit their particular combination of circumstances, local requirements and resources. There are associations between the adoption of one measure and the adoption of others (Table 7). This suggests that the ports involved in the study are pursuing a range of measures at the same time. It also suggests that there may be ports that actively pursue these measures and ports that do not adopt any of them.

Ports have a range of preferred ways for supporting measures to increase local social benefits, depending on the method they are supporting. It is clear (Table 10) that ports prefer nonfinancial methods of support, with financial support only being the preferred choice for port events. If port cities are to work towards increasing the social benefits the ports provide, the financial obstacle needs to be overcome. Despite being the least popular option, financial support is still a frequently used option, suggesting this is possible. Table 10 suggests that other stakeholders such as city authorities may be required to assist financially if they desire measures such as maritime museums, whereas port events may offer an option when this financial assistance is not possible. The most popular method for support is information provision, which explains why the most popular future measures for increasing social benefits are those which rely most on this, such as port information and social media and education.

Of all the measures, only port events and education are statistically associated with increasing port size. This suggests these two measures become either more attainable or more desirable as port size increases. There is no relationship in this data set between increasing GDP per capita of the host country and the adoption of these measures. Further work should be undertaken to identify any existing barriers to the adoption of these measures.

5. Conclusions and Recommendations

This global study highlights a recognition among port authorities that ports face increasing pressure from local residents to reduce their negative impacts and that they should seek to improve the attitudes of the local population towards the port by increasing the local benefits the port provides. This demonstrates that the finding of ESPO [16] that improving relations with the local community is a priority of ports is likely to be true at a global level. Ports are currently divided on whether or not the local populations are aware of the benefits ports provide and whether or not the local populations have positive views of the port. This highlights the progress still to be made in improving local social benefits.

The levels of adoption and levels of interest in key measures for increasing the social benefits of ports have been identified clearly globally for the first time. The majority of ports in the study have adopted one or more of the measures for increasing social benefits, with port information and social media (81%), port events (67%) and education (63%) being the most widely adopted methods at present. However, there is no evidence indicating that the adoption of these measures has led to improved local attitudes. Maritime museums and public access have been adopted by just under half of the ports in the study, and this adoption shows a statistically significant association with a perceived increased awareness of the benefits the port provides among the local population. Port centres are the least adopted option (29%) and the measure with the most potential for growth, with a 43% increase between current and future levels. Education (14%), public access (13%) and maritime museums (4.5%) also show increases in interest. It is important that these measures are implemented in the most effective way, and collaboration with other stakeholders such as city authorities may be an effective way of achieving this. Financial support is the least preferred way for ports to support these measures. Therefore, cooperation with other stakeholders may be essential to overcoming this, allowing this interest in future adoption to translate into actual increased levels of adoption.

Overall, this study suggests that the most widely used measures of port information and social media and port events are not highly effective, and focus will shift to increasing port centres, education, public access and maritime museums. Ports are willing to adopt these measures in the future; however, they prefer to support them through information provision and are less likely to support them financially. If sustainable development is to be achieved in port cities, greater work needs to be done to increase the adoption of these measures whilst also finding ways to increase the effectiveness of highly adopted measures such as social media. Maritime museums are currently not adopted by the majority of ports and not as highly desirable compared to other options. However, they are potentially effective at improving local awareness of the port's benefits. City authorities hoping to improve the social benefits of living in the port city should consider working with ports to provide maritime museums, helping to overcome the financial barriers they face.

This study identifies that port centres should be expected to play a large role in the future interactions between the port and the local residents, and it is therefore important that the benefits they can provide are maximised. Port centres may provide a focal point through which some of the other measures can be implemented, which gives them considerable potential to provide local social benefits. To improve the value added by port centres, ports and cities could work together to create port–city centres, to educate about the port whilst emphasising the role it plays within the city and the benefits it provides. A port–city centre could also serve as a hub for port and city interaction, which may enable greater cooperation on key issues.

This can enable ports to provide additional benefits for the local residents, improving the port–city relationship. This would be most effective when paired with methods to increase hard values in more sustainable ways, such as adding additional local economic benefits via circular economy principles [61] and renewable energy.

This study has several limitations. Amongst these is the fact that the ports which responded to the questionnaire are more likely to be ports that are actively interested in these topics. Many ports simply declined to take part or did not reply. Therefore, this research may be more representative of socially engaged ports rather than all ports. Despite best efforts to ensure a global sample, certain countries and regions are still over-represented, such as Europe.

Future work needs to be undertaken to identify ways to maximise the benefits of popular measures such as social media, as well as finding ways to actively encourage ports to be engaged in providing social benefits for local residents, as this study may not reflect those ports that are not interested in these issues. Further work also needs to be undertaken to identify the key barriers to the measures which are not widely adopted, helping identify ways to increase adoption. In general, sustainability work about port cities needs to pay greater attention to the social dimension, and this paper provides some insights into which measures could be suitable for implementation.

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