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Economic impacts of seafood production growth targets in Ireland

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ABSTRACT

This paper examines the potential economic impact of the Irish government strategy for the development of the seafood sector in Ireland, Food Harvest 2020 (FH2020). The seafood industry accounts for a large proportion of income and employment in peripheral coastal areas. Many of these regions are predominantly rural and they are largely dependent on the primary fisheries sector. Moreover, the services and retail businesses in these areas are heavily dependent on direct spending from the fisheries, aquaculture and seafood processing sectors. A social accounting matrix (SAM) approach with (1) set to zero purchase coefficients for all directly impacted industries and (2) changes in output converted to final demand shocks is used to calculate the economic and employment impact on the rest of the economy from an increase in the output in the fisheries, aquaculture and seafood processing sectors in Ireland. The results suggest fisheries sectors have strong links with the rest of the economy hence an important economic impact from a policy perspective.

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1. Introduction

The Irish seafood sector is a complex and fragmented traditional indigenous industry that makes a significant contribution to the national economy in terms of output, employment and exports. The industry contributed €242 million in Gross Added Value (GVA) to the Irish economy in 2010 [1]. While its contribution to the national economy is small relative to the agri-food sector, the Irish seafood sector is of strategic importance for the sustainable development of coastal communities. The spatial distribution of the sector, mainly dispersed along the Irish coastline, provides it with a key role in sustaining remote coastal areas through the generation of income and jobs.

This paper contributes to the broad area of marine strategic planning in the context of the promotion and development of the seafood sector. The overall aim of the research is to present the structure and linkages of the Irish seafood sector with the rest of the economy as a strategic planning tool to facilitate the decision-making process involved in implementing the Irish government's strategy for the medium-term development of the seafood industry.

Recent policy developments at the national level show the government's recognition of the importance of the seafood sector in Ireland. Based on the prospects of a strong increase in market

demand for seafood at the global and European level, Food Harvest 2020 (FH2020) strategy [2] aims to raise the sector's annual sales to €1 billion, to increase employment to 14,000 full-time equivalent jobs and to expand aquaculture production by 78 per cent by 2020. The extent to which these targets could have an impact on the economy as a whole is the subject of this paper. The objective of the current study is to assess the economic impact of the FH2020 seafood growth targets as well as the job creation potential. This assessment includes not only the direct effect on employment, but also the knock on effect that an increase in economic activity in the seafood sector would have on the rest of the economy. This is what is commonly known as the (indirect and induced) multiplier effect. This paper examines the employment multiplier effect from the projected increase in activity in the fisheries, aquaculture and seafood processing sectors using an Agri-Food Social Accounting Matrix (SAM) model for Ireland.

The Irish seafood sector consists of a commercial fishing sector, an aquaculture sector and a seafood processing sector. The commercial fishing sector involves pelagic, demersal and shellfish fisheries with 2247 registered fishing vessels and a combined gross tonnage of 65.2 thousand GT in 2012 [3]. There are six primary landing ports in Ireland – Killybegs, Castletownbere, Rossaveal, Howth, Dunmore East and An Daingean – and over one hundred secondary ports, piers and landing places. The total employment for the fishing sector in Ireland was estimated at 4714 jobs in 2011 [3].

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The aquaculture sector includes finfish and shellfish farming enterprises distributed across 2000 sites. Aquaculture production in 2010 was 46,600 tonnes with an overall value of 122.5 million Euros in 2010. The number of people employed in the Irish aquaculture sector was 1719 persons [4]. According to the latest STECF reports on the EU fishing fleet and the aquaculture sector, aquaculture production in Ireland accounts for approximately 13 per cent of total Irish seafood production in 2010. Recent disease and parasitic infestation together with a low market demand in the organic salmon sector are likely to bring the production growth in the Irish finfish sector to a standstill in 2013 [4].

The Irish seafood processing sector is comprised of approximately 200 seafood processing companies. These are mostly small enterprises—less than 10 employees— and they are primarily located in coastal communities, which greatly depend on this industry for employment [5]. The total employment for the seafood processing sector in Ireland was 1586 in 2010 [1].

While the economic downturn has had an impact on employment, the value of exports has increased in the recent years with a total market value of €517 million Euros in 2012, which represents an increase of over 20 per cent with respect to 2011 [6]. The primary export market for Ireland is France with a market share of 22 per cent in 2012 followed by Great Britain and Spain, with market shares of 15 per cent and 10 per cent respectively [6].

On the consumption side, seafood per capita consumption in Ireland has experienced considerable growth in the last few years and it is estimated at 21.4 kg per annum. While this is still below the EU average of 22.1 kg per capita consumption, it represents a home market value of 329 million Euros [6].

The European policy context affecting the seafood sector is extensive. Production of wild fish is regulated at national and EU levels. The Common Fisheries Policy (CFP), formally introduced in 1983, is the European Union's instrument for the management of fisheries. Aimed at enhancing the sustainability of fish stocks and the economic competitiveness of the fishing industry [7], it has been recently subject to reform. One of the most important areas of action of the common fisheries policy is setting the EU fishing rules. Ireland receives roughly one fifth of the total allowable catch set by the EU for Western Waters area.

In this paper, a social accounting matrix (SAM) for the agri-food sector in Ireland is used to estimate the economic and employment impact of the seafood sector production growth targets in FH2020. A SAM is a step above a standard input–output transaction table in terms of its ability to characterise the linkages that take place in an economy. An input–output table shows the link between production accounts, factors of production, private and public expenditure, investment, imports and exports, while a SAM can be interpreted as the representation of the circular flow production–income–expenditure–production. A SAM contains information on the owners of the factors (households, enterprises, and government) and foreign accounts transactions, while in the input–output table there is no information on those transactions, since it excludes the distribution of income in the economy [8]. The main advantage of a SAM based-analysis over the input–output analysis is that inter-industry linkages are taken into account as well as other transactions that are important for coastal communities [9].

There are numerous examples of the use of social accounting matrix (SAM) models in the context of fisheries management. Fernández-Macho et al. [10] and Seung and Waters [11] applied a SAM model to assess the contribution of the fishery sector on output, employment, and income. Seung and Waters [11] used a mixed endogenous–exogenous model to investigate the impacts of reduction in pollock TAC for North Pacific fisheries using a SAM framework. More recently, Seung and Waters [12] use an adjusted Alaska SAM model to estimate the economic impact of exogenous

changes in output as part of recent fisheries management actions and Arita et al. [13] use SAM modelling to assess the income distribution linkages of Hawaii's commercial fishery sector.

The calculation of input–output multipliers to capture the direct and indirect effects of changes in final demand began in Ireland with the early work of Copeland and Henry [14]. Multiplier analysis has been widely applied to assess the economic importance of particular industries (for example, agri-food sector: Miller et al. [15]; tourism: Norton [16]; O'Hagan and Mooney [17]; marine sector: Morrissey and O'Donoghue [18], or energy sector: Clancy and Scheer [19]. Indeed, the widespread use of multipliers to expand our understanding of the economic importance of a sector in consultancy studies and by lobby groups seeking to stress the importance of their industry to the economy and to justify receiving special incentives, has brought multiplier analysis into a state of disrepute. During the brief period of full employment in the Irish economy in the mid-2000s the assumption of unemployed resources necessary to justify the use of multiplier estimates to influence investment allocation clearly did not apply. The disrepute attached to multiplier analysis is only partially justified, however. Multiplier estimates properly interpreted can give important insights into the structure of the economy and the 'embeddedness' of different sectors. They are also useful in helping to trace the total impacts of changes in the structure of the economy. For example, O'Doherty and Tol [20] developed an environmental input–output model to estimate the short-run response of emissions and resource use to changes in consumption and production patterns in Ireland.

The rest of the paper is organised as follows. Section 2 described the conceptual approach to defining the policy scenarios. Section 3 presents the methodology and data sources. Section 4 discusses the results and Section 5 concludes.

2. The seafood sector in Ireland

The Irish seafood sector consists of a commercial fishing sector, an aquaculture sector and a seafood processing sector. Tables 1 and 2 show the most recent trends in Irish fishing and aquaculture since 2008. Employment in the fishing sector has increased significantly in the 2009–2011 period, most likely as a result of the economic recession and the drop in activity in the construction sector in Ireland. From a European perspective, Ireland ranks eighth with regard to its contribution to the overall value added of sea fisheries among the 27 member states.

Table 2 shows recent trends in the Irish aquaculture sector for the 2008–2010 period. While production volumes have remained stable, there has been a large growth in turnover and in value added, with increases of 30 per cent and over 70 per cent respectively.

Regarding international trade, exports of Irish seafood are on the rise. According to the Irish Sea Fisheries Board, exports increased 20 per cent in value in 2012, representing 60 per cent

Table 1

The Irish fishing sector, 2008–2011.

Source: The 2013 Annual Economic Report on the EU Fishing Fleet. In Scientific Technical and Economic Committee for Fisheries (STECF), JRC Scientific and Policy Reports, J. Anderson and N. Carvalho, Editors. 2013, European Commission, Joint Research Centre: Ispra, Italy.

	2008	2009	2010	2011	% EU_27 (2011)
Landings weight (thousand tonnes)	198.0	262.6	314.2	199.4	4.27
Landings value (million Euro)	196.5	185.9	202.1	200.3	3.18
Employment	3987	3849	4399	4714	3.69 ^a
Value added (million Euro)	92.7	85.8	116.1	111.6	3.28 ^a

^a Excludes data from Cyprus, Estonia and Greece.

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