PROJECT POLICY BRIEFING 5

The Potential Impacts of the UK Immigration Policy on the Northern Irish Agri-food Economy

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INTRODUCTION

1.1 The immigration policy of the United Kingdom of Great Britain and Northern Ireland (UK) saw sweeping changes post Brexit, when the UK left the European Union (EU) on the 31st of December, 2020. Changes were announced on the access of the UK labour market through a newly set out "Points Based Immigration System" (PBIS) which was implemented on the 1st of January, 2021. This immigration system applied to all foreign nationals for any new visa and settlement applications.

1.2 Existing EU nationals in the UK would be able to apply to settle in the UK through the "EU Settlement Scheme", and would need to meet the eligibility criteria of living in the UK by 31st December, 2020. Any new EU nationals wishing to live in the UK after this cut-off date would need to follow the rules set out in the "Points Based Immigration System".

1.3 The PBIS in the UK provides various options depending on the requirement for workers in different sectors in the economy. High-skilled workers[1] are able to apply to work in the UK through the Skilled Worker Visa and must meet the eligibility requirements set out in the system.

1.4 In order to fulfil the requirements for this visa, an applicant must[2]:

a) "Work for a UK employer that's been approved by the Home Office.

[1] A worker is considered skilled by the home office if they possess a skill level of RQF 3 or above. Here skilled and high-skilled are used exchangably.

[2] As defined by Home Office (2021). 'Skilled Worker visa - Eligibility'. Available at: https://www.gov.uk/skilled-worker-visa

b) Have a 'certificate of sponsorship' from their employer with information about the role they've been offered in the UK.
c) Do a job that's on the list of eligible occupations.
d) Be paid a minimum salary - how much depends on the type of work they do."

1.5 A special Shortage Occupation List (SOL) provides some relaxations to the eligibility requirements. If an applicant is on the SOL, they are eligible to get paid a lower salary and still qualify for the visa. Since there are regional differences in sectors that experience shortages, this is reflected in the SOL. The Migration Advisory Committee (MAC) recommends that a minor review of this list be undertaken annually and major reviews to be conducted every 3 years. It is anticipated that a major review will take place in autumn 2022 but this has not been formally commissioned by the Home Office yet.

1.6 Workers that are considered "lower-skilled" by the Home Office – those who have a skill level of below RQF[3] 3 – are not eligible to apply for the skilled worker visa. However, some sectors in the economy, such as the agricultural sector, face shortages in lower-skilled labour as well. In order to address this, special visa options are available. One such option is the Seasonal Agricultural Workers Scheme (SAWS).

1.7 The SAWS[4] allows high-skilled and lower-skilled workers to work in certain parts of the UK agriculture sector for up to 6 months in a 12 month period. This

[3] RQF is the Regulated Qualifications Framework set out by Ofqual. A higher level implies the difficulty level of the qualification.
[4] As defined by Home Office (2021). 'Temporary Work – Seasonal Worker visa'. Available at: https://www.gov.uk/seasonal-worker-visa/eligibility

includes the 'edible horticulture' and the 'ornamental horticulture' sectors[5]. In order to qualify for this, they must have a certificate of sponsorship for their UK employer, as well as enough money to support themselves in the UK - £1,270.

1.8 The Food Processing sector in Northern Ireland is one such sector that has faced shortages in labour supply as a consequence of Brexit. These issues have impacted both high-skilled and lower-skilled labour supply. While high-skilled workers shortages, can, in part, be met through the Skilled Worker Visa, extensive visa options do not currently exist to address lower-skilled worker shortages.

1.9 While official data on labour market shortages in the food processing sector in NI isn't widely available, there is some evidence of these shortages[6]. Sectors that are known to have shortages include horticulture, particularly mushrooms, poultry and pig meat sectors.

1.10 Additionally, shortages in labour elsewhere in the economy, such as HGV drivers in the transport sector, also directly impact the level of production in the agricultural and food processing sectors.

1.11 In 2021, some steps were taken to address these supply chain issues through the use of temporary seasonal workers visas. The Home Office announced temporary changes to this by extending the SAWS to 'pork butchery', 'poultry work', as well as for heavy goods vehicles drivers. This was primarily to address short-run supply shortages in the UK food supply in the run-up to the festive period.

[5] Home Office, DEFRA (2021). https://www.gov.uk/government/news/industry-given-certainty-around-seasonal-workers-but-told-to-focus-on-domestic-workforce

[6] Based on information received by AFBI from DAERA economists.

1.12 However, it was seen that the uptake of these temporary visa schemes set out by the Home Office was very small. Of the quota of 5,000 visas available for HGV drivers, only 135 visa applications were made, and 130 visas were issued. Similarly, for poultry work, the quota was set at 5,500 visas. The number of applications received was at 1,845 and 1,770 visas were issued. This reflects the uptake of such schemes in 2021[7].

1.13 In terms of skilled worker visas, a key issue pointed by experts in the food processing sector is that of the English language requirement. While international job applicants possess the skills required to conduct the jobs, they often do not possess the fluency in English required as a part of the visa. This means that the industry may miss out on potential workers required in the sector.

1.14 Labour shortage in the NI food processing sectors remains unchanged. This requires to be addressed through various means. The impact of the UK's new Immigration System on the labour supply in this sector needs to be assessed, and various policy options to overcome these shortages need to be discussed.

Summary of the Report

1.15 In this report, we discuss two baseline and various policy scenarios that may lessen the labour shortage problems under the current immigration policy and look at the potential impact of different policy scenarios on the overall economy and Food Processing sector in Northern Ireland.

[7] Home Office (2022). 'Why do people come to the UK? To work'. Available at: https://www.gov.uk/government/statistics/immigration-statistics-year-ending-december-2021/why-do-people-come-to-the-uk-to-work

1.16 The results discussed are derived using an Agri–based single-region Computable General Equilibrium (CGE) model – the IFPRI model. This model is calibrated to data from Northern Ireland. A description of this model is provided in this report.

1.17 Sector-specific and overall macroeconomic impacts of the policies on Northern Ireland are discussed as well. We then elaborate on the implications of these policies on the food processing sector in NI.

POLICY SCENARIOS

2.1 From 2005 to 2016, the food and drink processing sector in NI experienced a growth in its scale and size[8], which coincided with an influx of migrants from new member states in the EU to the UK. A high proportion of vacancies in the sector were filled through recruiting from EU countries.

2.2 Currently, the food processing sector in Northern Ireland is continuously expanding and facing issues in filling vacancies through the domestic labour market and international market. The recruitment from the international market is subject to stringent visa restrictions.

2.3 There is also some evidence that the number of EU migrants in NI has reduced since the Brexit referendum was held. From 2016 to 2020 the number of EU migrants in Northern Ireland has reduced by about 32.88% (NISRA, 2021[9]). This indicates that there is an outward migration of EU workers from NI, and could be an issue for the food processing sector.

2.4 Two main factors could be responsible for the above described exodus of migrants in the in NI economy – COVID-19, and Brexit. However, the focus of this report is squarely on the impacts of the new immigration policy under Brexit on the food processing sector.

[8] NISRA (2022). Turnover in Northern Ireland Food and Drinks Processing Sector. Available at: https://datavis.nisra.gov.uk/daera/food-drink-processing-sector.html#charts

[9] Based on the Labor Force Survey. Produced by NISRA (2021). Available at: https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/Overview-of-People-Movement-Migration-and-Transport-NI-August-2021.pdf

2.5 EU workers in the UK were given the opportunity to continue to live and work in the UK under the EU settlement scheme. The occurrence of COVID-19 could have led to these workers returning to their home countries in 2020. Subsequently, post-Brexit, the industry was not able to hire new workers from EU in the same way it could prior to the introduction of UK's new immigration system.

2.6 We look at 5 main scenarios to study the impacts of the new Immigration System on the NI food processing sector. We start off by studying two baseline scenarios representing the immigration policies pre and post Brexit. We then look at three alternative policy options in order to increase the labour supply in the NI food processing sector.

2.7 Scenario 1 represents a hypothetic case that assumes all EU workers in NI food processing are stripped out in the pre Brexit period (i.e. 2016). By doing this, we look at the impact of EU workers in the NI food processing sector before Brexit. In order to do so, we look at the economic contributions of high-skilled and lower-skilled workers in the NI food processing sector by looking at what the economy would look like if these workers did not work in the sector i.e. if there were no EU workers employed in the NI food processing sector. In particular, we find the level of employment of EU workers in NI and their economic contributions to the economy of the region.

2.8 Scenario 2 represents the post Brexit scenario. Here, the PBIS is the primary visa option for high-skilled workers (see paragraphs 1.3 & 1.4), while the SAWS is the scheme for lower-skilled workers in certain parts of the horticulture sector (see paragraph 1.7). We find the level of fall in labour supply in the food processing sector post Brexit. In order to do this, we find the changes in new workers coming to NI to work in the food processing sector in 2021, compared to the 2016 baseline for both high-skilled and lower-skilled jobs.

2.9 In Scenario 3, we find the impacts of applying the new UK immigration policy on all sectors in the NI economy, except for the food processing sector. In essence, this implies that the pre Brexit immigration policy holds true for the food processing sector, and both, high-skilled and lower-skilled workers are have unfettered access to jobs in the NI food processing sector.

2.10 In scenario 4, we look at the impacts of having no English language requirements for skilled workers in the NI food processing sector. We essentially look at the impacts of all sectors having the post Brexit immigration policy including the food processing sector, with the sole exception that applicants in the food processing sector do not have to pass the English Language test. This applies only to the labour supply of high-skilled workers.

2.11 Scenario 5 looks at the impact of increasing high-skilled and lower-skilled labour supply in the NI food processing sector through a seasonal workers scheme. This is done through expanding the current SAWS scheme from just the horticulture sector to all sectors of the agri-food economy. It is assumed that 50,000 workers are allowed to work in the UK food processing sector, and the scheme has full uptake. A proportion of these workers also come to work in the NI food processing sector.

2.12 There are three caveats to the design and results for scenario 5. First, the proportion of workers allocated to NI is based on historical data on seasonal worker visa distributions to UK regions. However, the food processing sector in NI has a higher contribution to its economy, as compared to the national average. Second, historic data tells us that such visa options have not had full uptake in the past. We assume full uptake of the scheme in our scenario. Third, there have been concerns by the industry since the scheme only allows workers to work for 6 months, of which time may be spent on training workers, reducing overall effectiveness.

2.13 In all, we expect to find the negative impacts of reducing labour supply in the NI food processing sector on the economy of the country. We then find how changes to the policy may help reduce the negative impacts by improving labour supply in the economy.

2.14 The modelling specifications of these scenarios is further elaborated upon in section 3 of this report, where the calibrated shocks are presented in further detail.

THE IFPRI MODEL

3.1 The International Food Policy Research Institute (IFPRI) has created a CGE model template that focusses on the 'analysis of issues related to food policy' (Lofgren et al., 2002). This model has been widely used in research to look at policy issues in agriculture and food processing sectors in the past.

3.2 The basic structure of the IFPRI model is used in this analysis, with some modifications, such that the region of Northern Ireland is reflected in the model to represent the structure of economy and agri-food sectors of the country.

3.3 A Social Accounting Matrix (SAM) for Northern Ireland is created with the base year of 2016. An Agriculture based Input-Output table for 2016 is created by AFBI using data from supply and use tables for the year published by NISRA (2021) as well as DAERA (2017). A representation of the SAM structure for the IFPRI model is shown in Figure 1.

Figure 1: The Basic SAM structure used in the IFPRI CGE Model

Source: Lofgren et al., 2002

	Expenditures								
Receipts	**Activities**	**Commodities**	**Factors**	**Households**	**Enterprises**	**Government**	**Savings-Investment**	**Rest of the World (ROW)**	**Total**
Activities		Marketed outputs		Home-consumed outputs					Activity income (gross output)
Commodities	Intermediate inputs	Transaction costs		Private consumption		Government consumption	Investment	Exports	Demand
Factors	Value-added							Factor income from ROW	Factor income
Households			Factor income to households	Interhousehold transfers	Surplus to households	Transfers to households		Transfers to households from ROW	Household income
Enterprises			Factor income to enterprises			Transfers to enterprises		Transfers to enterprises from ROW	Enterprise income
Government	Producer taxes, value-added tax	Sales taxes, tariffs, export taxes	Factor income to government, factor taxes	Transfers to government, direct	Surplus to Government, direct enterprise taxes			Transfer to Government from ROW	Government income
Savings-Investment				Household savings	Enterprise savings	Government savings		Foreign savings	Savings
Rest of the World (ROW)		Imports	Factor income to ROW		Surplus to ROW	Government transfers to ROW			Foreign exchange outflow
Total	Activity	Supply expenditures	Factor expenditures	Household expenditures	Enterprise expenditures	Government expenditures	Investment	Foreign exchange inflow	

3.4 While the Input-Output tables produced by AFBI contain 83 sectors, the SAM used in the IFPRI model for this study is aggregated to 27 sectors. These include 8 agricultural sectors, 7 food processing sectors, and 12 other sectors representing the economy of Northern Ireland.

3.5 The number of sectors within the model can be further aggregated or disaggregated depending on the requirements of various studies.

3.6 The factors of production in this version of the model include capital, high-skilled labour and lower-skilled labour. The skill level of labour is based on the definition by the Home Office for visa purposes, where a skill level of RQF 3 and above is considered high-skilled.

3.7 Production within the IFPRI model is defined through a nested production function, wherein domestic and imported commodities combine through a CES function to produce a composite commodity. Each activity uses these commodities as intermediate inputs in the production process through a Leontief function.

3.8 Various factors of production combine in a CES function to produce value added. Finally, the value added and intermediate inputs combine in a CES function to produce an activity level, which defines the level of commodity output.

3.9 The labour market contains high-skilled and lower-skilled labour, and are assumed to be a closed labour market. This allows for exogenous changes to the labour supply while applying the shocks. Wages are assumed to be endogenous and flexible. Thus, changes in sectoral labour supply have an effect on wages by sector.

3.10 Capital is assumed to be fixed at the base level and immobile between sectors. This allows for changes in labour wages to have an impact on total factor prices, feeding through to changes in the level of production, consumption, and therefore, overall GDP.

3.11 Apart from the data in the SAM, various other data is used to calibrate the IFPRI model, in order to reflect the economy of Northern Ireland. This includes a number of elasticities and parameters. These are defined as shown in Table 1.

Table 1: Elasticities used on the NI IFPRI model

	IFPRI model values
Production block	
Top: substitution between value added and intermediate inputs	0.6
Bottom: substitution between factors of production	0.8
Trade block	
Armington	0.8
Constant elasticity of transformation (CET)	1.6
Household consumption elasticities	
Frisch	-1
Expenditure elasticities of home demand	1

3.12 Households receive income from the factor market, government transfers and transfers from the Rest of the World (ROW). This income is used to pay taxes, make transfers to other institutions, consume from the commodity markets, and then save. Household consumption is assumed to be linear.

3.13 Governments are assumed to collect taxes from households and activity markets, and spend these taxes on transfers to other institutions and purchases from the commodity sectors. Any residual between these is assumed to be government savings. It is assumed that government tax rates are fixed, while the level of government savings is flexible and endogenous.

3.14 In terms of the Rest of the World (ROW), the exchange rate is assumed to be fixed, and the savings are conversely assumed to be flexible. This assumption is made since the rest of the UK is also combined with the rest of the world, and using the alternative assumption of a flexible exchange rate would be difficult to interpret in this specific case.

Modelling immigration policies in NI

3.15 In the model described above, we note that the skilled and lower-skilled labour markets are disaggregated. These labour markets are assumed to two different factors of production, and their quantities are calibrated in the base year.

3.16 We also have made assumptions in setting up the labour market in such a way that the labour supply can be exogenously shocked. Thus, we are able to introduce high-skilled and lower-skilled labour supply shocks in various activity sectors. This allows us to examine various policies that we discuss in the previous sections.

3.17 A key assumption is that labour wages are flexible, and this allows for changes in labour supply to propagate to changes in labour wages, and thus, household consumption, capital requirements, government savings, level of output, trade, and thus, the GDP. A caveat here is that within the model, wages

may fall below the minimum thresholds described by the Home Office, and this cannot be controlled within the model.

3.18 In all 5 scenarios, the main shocks that introduced into the model is the changes in the labour supply in the economy. This change in labour supply is different for various sectors, and different for high-skilled and lower-skilled labour.

3.19 Table 2 presents in the weighted average of the labour supply shocks applied to the food processing sectors, as well as the rest of the economy in NI.

3.20 Certain assumptions have been made in the calibration of the shocks listed below. In scenario 1, we assume that all EU workers are no longer working in the NI food processing sector and the rest of the economy. This is done to understand their economic contribution, and this is considered as one of two baseline scenarios[10]. The scale of changes in labour supply based on real data is set out in table 2.

3.21 In scenario 2, it is assumed that reduction in workers in the high-skilled and lower-skilled labour supply is fixed in proportion at the base level. This is to say that the level of reduction would be dependent on the proportion of high-skilled workers to lower-skilled workers in the economy. Scenario 2 also represents a fall in the number of visa applications made in 2021 from across the world under the newly implemented immigration system[11]. Since this coincides with the

[10] Based on data from Labour Force Survey, 2020. As published by NISRA (2021). "Labour Force Survey Annual Report 2020". Available at: https://www.nisra.gov.uk/publications/labour-force-survey-annual-report-2020

[11] Data available from Migration Advisory Committee (2021) "Annual Report 2021 Detailed Data Tables and Charts". Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1041075/MAC_Data.ods

occurrence of Covid-19, it is not yet possible to isolate the impacts of Covid-19 from the new immigration system as yet.

3.22 In scenario 3, while no shocks are applied to the food processing sectors, there are shocks applied to all other sectors in the economy. This is representative of having a pre Brexit immigration policy in the food processing sector, but a post Brexit immigration policy on the other sectors of the economy.

3.23 In scenario 4, the English Language requirement is removed for the food processing sector. This shock is calibrated based on analysis by the University of Oxford (2019) that describes the problems in keeping a job in the UK based on their difficulties with English, and is disaggregated by EU-14, EU-8, EU-2 and EU other countries. This effect is only applied to the high-skilled labour supply. The lower-skilled labour supply is assumed to be the same as the post Brexit scenario (Scenario 2).

3.24 In scenario 5, labour supply in the food processing sector is increased due to a new policy of seasonal workers in the economy. It is assumed that 50,000 workers are brought into the UK food processing sector. NI's share of this is derived through the share of visas that are issued to employers in NI as a proportion of total visas issued, which is 1.41% in 2020 (Migration Observatory, 2021). The distribution of the visas to high-skilled and lower-skilled categories is assumed to be fixed in proportion to the base year data. This is to say that the skill distribution in various food processing sectors remains the same.

Table 2: Calibrated labour supply shocks on the economy

Scenario	High-skilled Labour Supply		Lower-skilled Labour Supply	
	Food Processing	Rest of the Economy	Food Processing	Rest of the Economy
(1)	-1.43%	-1.43%	-5.72%	-5.72%
(2)	-2.31%	-2.31%	-3.79%	-3.79%
(3)	0.00%	-2.31%	0.00%	-3.79%
(4)	-1.11%	-2.31%	-3.79%	-3.79%
(5)	0.21%	-2.31%	-1.23%	-3.79%

3.25 The results of these will be presented in the following section.

IMPACTS OF IMMIGRATION POLICIES

Baseline scenarios

4.1 As previously discussed, scenarios 1 and 2 are considered the baseline scenarios for the purpose of this analysis. In scenario 1, the total fall in labour supply is estimated to be 3.12% when compared to 2016 levels. This includes a fall of 1.43% in high-skilled employment and a reduction of 5.72% in lower-skilled employment. Similarly, in scenario 2, the total fall in labour supply is found to be 2.89%.

4.2 The model finds that with a fall in labour supply, we should expect a rise in the level of wages in the economy. However, within the CGE model, we consider the capital and labour are to be more complementary than substitutable, which leads to a fall in the level of output. There is also an increase in the composite price of commodities. These two factors lead to a fall in the level of household consumption.

4.3 Meanwhile, it is also noted that the export prices rise, owing to a lower level of output as well as increased prices of the factors of production, and the level of exports fall. Conversely, it is also found that the level of imports increase, despite an increase in import prices. Since the rise in the domestic composite price is higher than the import prices, preferences shift towards foreign goods, meaning less exports and/or more imports.

4.4 In all, we find that any reduction in labour supply in the economy would lead to increased wages and prices, while output and GDP would fall.

Table 3: Economy-wide results of Baseline Scenarios

Variable	Scenario	
	(1)	(2)
GDP	-2.52%	-2.33%
Total Output	-3.48%	-3.25%
Household Consumption	-0.97%	-0.91%
Composite Price	0.75%	0.71%
Investments	-1.33%	-1.26%
Government Income	-1.29%	-1.19%
Exports	-1.71%	-1.59%
Export Price	1.93%	1.80%
Imports	1.55%	1.44%
Import Price	0.45%	0.42%
Labour Wage	3.10%	2.83%
High-skilled Employment	-1.43%	-2.31%
Lower-skilled Employment	-5.72%	-3.79%
Labour Supply	-3.12%	-2.89%

4.5 The results from the two baseline scenarios could be better understood when they are compared to one another. In scenario 1, we remove all EU workers from the economy, while in scenario 2, we look at the impact of having a new immigration policy including visas issues from all countries. These results are based on real data obtained for immigration in 2021. However, as stated in paragraph 3.21, there was also the impact of COVID-19 in this data. This means that the high-skilled employment falls by a larger amount in Scenario 2, contrary to the expectations. Total fall of the high-skilled labour supply in scenario 2 includes immigrant labour from the EU, rest of the world, as well as native workers from within the UK and Ireland. While there is a smaller fall of high-skilled workers from the EU in scenario 2 as compared to scenario 1, COVID-19 has meant that there is a large fall in the number of native workers, as well as workers from the rest of the world. The effect from the rest of the world being more dominant, we see that there is a greater fall in the high-skilled employment in the post-Brexit immigration regime, exacerbated by the COVID-19 pandemic. This caveat must be

taken into consideration while examining these results. Thus, it is seen that there is a fall in high-skilled employment after Brexit.

4.6 Conversely, with no new lower-skilled employment in the food processing sector, and some existing EU workers leaving the NI economy, this fall is found to be lesser in scenario 2 at 3.79%, while compared to scenario 1. In scenario 1, where all lower-skilled EU workers are removed, the fall in lower skilled employment is found to be higher at 5.72%. A majority of immigrant lower-skilled workers in the UK are from the EU and only a small proportion are from the rest of the world. The lower-skilled EU workers already in the UK pre-Brexit and taking up the EU settlement scheme are accounted for in scenario 2 and hence it shows a smaller reduction in lower skilled labour supply compared to scenario 1. However, it is important to note that it is not possible to say if the reason for EU workers leaving the NI economy is because of Brexit or COVID-19.

Policy scenarios

4.7 Various policy alternatives are discussed in order to increase the labour supply in the NI food processing sector. The results presented in table 4 for scenario 3, 4 and 5 are comparable to the baseline scenario 2.

4.8 An increase in labour supply would have the converse effect of that discussed in paragraph 4.2. It is seen that labour wages would fall when the level of high-skilled and lower-skilled employment rises. However, the overall impact would still be a fall in labour supply when combined with the post Brexit scenario 2.

Table 4: Economy-wide results of Policy Scenarios

Variable	Scenario			
	(2)	(3)	(4)	(5)
GDP	-2.33%	-2.23%	-2.31%	-2.24%
Total Output	-3.25%	-3.07%	-3.19%	-3.10%
Household Consumption	-0.91%	-0.86%	-0.89%	-0.86%
Composite Price	0.71%	0.67%	0.69%	0.67%
Investments	-1.26%	-1.18%	-1.22%	-1.19%
Government Income	-1.19%	-1.14%	-1.18%	-1.15%
Exports	-1.59%	-1.51%	-1.57%	-1.52%
Export Price	1.80%	1.70%	1.77%	1.72%
Imports	1.44%	1.37%	1.42%	1.38%
Import Price	0.42%	0.40%	0.41%	0.40%
Labour Wage	2.83%	2.68%	2.78%	2.70%
High-skilled Employment	-2.31%	-2.21%	-2.26%	-2.20%
Lower-skilled Employment	-3.79%	-3.61%	-3.79%	-3.67%
Labour Supply	-2.89%	-2.76%	-2.86%	-2.78%

4.9 Reverting the food processing sector in NI to the pre Brexit immigration system would lead to a smaller reduction in labour supply, as expected. The fall in GDP would also be smaller. The magnitude of this reduction in GDP terms is found to be 2.23%. This is because the rest of the economy still experiences a reduction in labour supply for both high-skilled and lower-skilled labour.

4.10 Similarly, removing the English language requirement from the skilled worker visa for the food processing sector will lead to an increase in the level of high-skilled employment compared to scenario 2. The level of lower-skilled employment remains the same in the food processing sector as the base year. The fall in the level of total labour supply is 2.86%. This means that the fall in GDP would be smaller by 0.02%.

4.11 Finally, increasing the labour supply through seasonal workers would have a positive impact in terms of mitigating the negative impacts of the introduction of the new Immigration Policy on the NI food processing sector. This policy would offset the GDP by 0.09%, as compared to 0.10% of reverting the food processing

sector to pre Brexit immigration policy. Since these differences are quite small, we need to look at sectoral results to make any meaningful assessments of the policy alternatives. These results are subject to the three caveats discussed in Paragraph 2.12.

4.12 In all, we find that all three policy scenarios will be able to partly mitigate the negative impacts of the post Brexit immigration policies. However, there would still be a negative impact on the overall economy in all cases as there is a fall in total labour supply in NI for both – high-skilled and lower-skilled employment.

4.13 While these results do show the macroeconomic picture, they do not show the specific impact on the food processing sector. Due to the nature and composition of the food processing sector, we expect the three policies to have a differential impact on each industry within the sector.

Sectoral Impacts

4.14 We have seen the impact of all three policies on the macroeconomic level for Northern Ireland. We now see how these three policies impact individual food processing industries in terms of the level of output. Results for this are presented in table 5.

4.15 Sectoral results show that the fall in labour supply resulting from Brexit will have a key impact on sectors that have a high level of lower-skilled employment. These include the horticulture sector, as well as the other foods sector. This impact is expected since Brexit would reduce any new migrant lower-skilled employment to zero, with the exception of those permitted via the Seasonal Agricultural Workers Scheme.

4.16 While the results presented above are macroeconomic, it is also found that the fall in the level of output is greater in the food-processing sectors as they depend heavily on lower-skilled labour from the new EU member states.

4.17 Consequently, if the pre Brexit immigration policy is reinstated in the food processing sector as in scenario 3, these are the same sectors that experience an increase in the level of output, albeit not at the exact same level as pre Brexit. These differences may be due to changes in income and supply chain effects from various other parts of the economy.

4.18 Apart from the demand side reasons, we should also note that these changes could be due to changes in other factors such as changes in the supply of other sectors in the economy that the food processing sector shares linkages with. These may have changes in the level of supply since they are still subject to the post-Brexit immigration systems.

Table 5: Sector-specific changes in output for Policy Scenarios

Sector	Scenario			
	(2)	(3)	(4)	(5)
Beef and Lamb	-5.74%	-0.13%	-2.77%	-1.12%
Pork	-1.40%	0.11%	-0.74%	-0.16%
Poultry Meat	-2.55%	0.07%	-1.15%	-0.39%
Fish & fish products	-2.61%	-0.13%	-1.90%	-0.56%
Fruit and Vegetables	-9.62%	-0.13%	-8.13%	-1.79%
Dairy Products	-6.06%	-0.09%	-4.10%	-1.14%
Other Food	-10.95%	-0.23%	-8.19%	-2.11%

4.19 The removal of the English language requirement from the skilled worker visa would cause food processing sectors to increase the level of output compared to 2021 levels. However, this recovery is partial in terms of output since there is still a shortage of lower-skilled workers. Sectors such as pork and poultry meat are noted to have a better recovery due to high-skill level shortages in these

sectors than in sectors such as horticulture, which have more shortages in lower-skilled workers. This is reflected in the results of scenario 4.

4.20 Seasonal workers in the food processing sectors would increase the level of output in sectors that traditionally are high in lower-skilled employment. Since we assume that the inflow of workers through the scheme are distributed in high-skilled and lower-skilled employment, we see that there is a greater recovery than in scenario 4. However, if this scheme was more focussed on lower-skilled employment, we could expect the recovery to be better.

4.21 The results presented for scenario 5 are based on an assumption that the allocation of workers to NI is based on the historical data for the SAWS which is only for the horticulture sector. However, since the extended scheme being examined in this report extends the seasonal workers across the food processing sector, this assumption may not hold, thus understating the results. However, as alternative data does not exist for allocations, we make this assumption. This caveat must be considered while reflecting on the results from scenario 5.

4.22 We do see some differences in terms of sectors in these results. These differences are primarily down to the labour market composition of these sectors. Since the policies in scenarios 4 and 5 are targeted on either high-skilled or lower-skilled employment, the labour market composition will have an impact on the level of fall in output, as well the recovery from the policies.

POLICY IMPLICATIONS AND CONCLUSIONS

5.1 In this report, we have seen the responses various different polices will have on the overall economy on Northern Ireland and on the food processing sectors in particular. We note that in all cases, changes in immigration policy away from free movement of labour with the EU will have a negative impact on the labour supply of the economy.

5.2 The new immigration policy implemented post Brexit will overcome some of the negative impacts of the reduced labour supply, but these are mainly isolated to the high-skilled labour supply. Due to a lack of immigration options for lower-skilled workers, and labour shortages in the domestic labour market, sectors such as food processing which employ a large number of lower-skilled workers are expected to face staffing problems.

5.3 The food processing sector in NI can be expected to benefit from increased high-skilled labour supply, should the English language requirement be removed from the skilled worker visa. It is noted that such a policy may increase labour supply as compared to the post-Brexit immigration policy, but this would still be below pre-Brexit levels.

5.4 Lower-skilled labour shortages can be expected to be partially mitigated in the short-run through a policy such as replicating the seasonal worker scheme in the agriculture sector to the food processing sector.

5.5 It is clear that the food processing sector is relatively low-skilled labour intensive, and would require a high level of labour to continue to be a high-output sector in the NI economy. However, immigration of workers is widely known to be

a short-run solution to such structural problems, as the sector is presently labour intensive, which may be, in part, due to the high availability of labour from the EU markets due to free movement in the past 10-15 years.

5.6 Long-run solutions need to be established to increase the robustness of the labour supply in the food processing sector of Northern Ireland. This would make the supply chains for food to become more resilient in the long-run, and NI would be less dependent on migrant workers to process its vibrant range of agricultural produce.

5.7 In the modelling set-up, capital was assumed to be fixed, and not substitutable with labour. However, if alternative assumptions of substitution between capital and labour are considered, increasing the level of capital and its utilisation in modernising technologies in the food processing sector may go a long way in automating various processes. Such a long-run strategy would also require spending on upskilling the existing workforce in NI to operate machinery.

5.8 With a fall in the level of labour supply, a key result noted was an increase in wages. In the long-run, we could expect higher wages to make food-processing sector more desirable to work in for the native workforce in NI. Such an effect would allow NI to become more resilient to changes in immigration policies made at the UK government level.

5.9 Policies such as those discussed in this report to increase high-skilled and lower-skilled labour supply can greatly help in the short-run. However, further research is required to look at the long-run policy options to transform the sector.

5.10 In all, with the implementation of Brexit and the resultant new immigration policy, the food processing sector is expected to experience negative impacts. However, with the right short-run and long-run strategies, this can be converted

into an opportunity for NI to make the sector more resilient to changes in the future.

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