

Taking flight – 2018

An economic and employment analysis
of the aviation leasing industry in Ireland



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Foreword

With Ireland's geographical location as an island nation on the western seaboard of Europe, aviation has played a vital role in connecting Ireland both to our nearby continental neighbours and the rest of the world from both a social and economic perspective.

Ireland's aviation offering has seen considerable growth since the birth of commercial aviation in the early 20th century. Indeed, one of Ireland's earliest introductions to aviation came with the landing of Alcock and Brown in 1919 in the west of Ireland following their completion of the first ever transatlantic flight. Their choice of Ireland as a landing location, whether intended or not, was a sign of things to come for aviation in Ireland. Air traffic through the country's airports has seen rapid growth, with Dublin to London Heathrow now the 9th busiest international flight route in the world (OAG Aviation, 2018) and the Irish Aviation Authority now responsible for managing 90% of all traffic that transits between Europe and North America.

On the foundation of Guinness Peat Aviation (GPA) in the 1970's by Aer Lingus and the Guinness Peat Group under the leadership of Tony Ryan, Ireland became an early adopter of the aircraft leasing industry. That fledgling industry grew exponentially in the intervening years to record estimated global revenues in 2017 of US\$16.7 billion (Air Finance Journal, 2017). Successive Irish Governments have recognised the potential benefits and rewards

for the country of having a truly global industry based out of Ireland. In order to foster its continued growth, Ireland has endeavoured to maintain a favourable and efficient environment for lessors, and indeed for all industries, to do business in Ireland.

The key findings in this report show that this favourable environment has certainly paid dividends for both Ireland and aviation lessors, with the result that Ireland has become the major global centre for the aviation leasing sector.

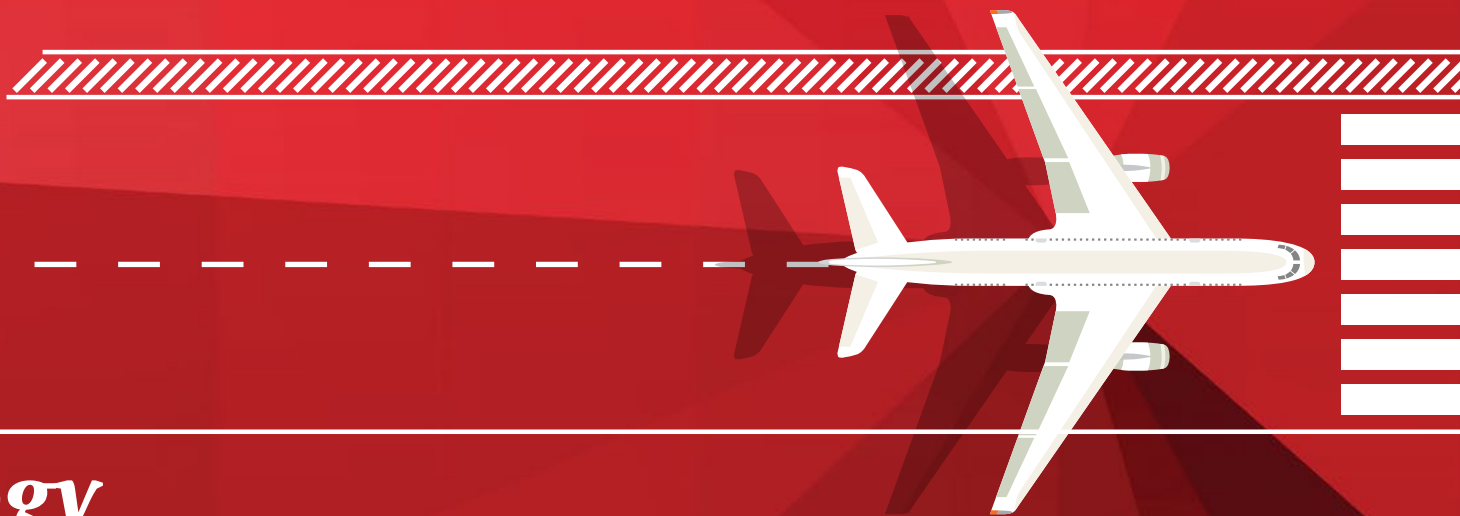
This report reflects the views of Irish based aircraft and engine lessors on a range of key areas sourced via a detailed survey. Given the relatively recent global economic turmoil, this study shows that the Irish aviation leasing industry is a true economic success story. This success is illustrated by the fact that, based on survey responses and publically available information, the industry supports over 4,970 jobs in Ireland.

The recent PwC Megatrends report noted the growth of the middle class in the Asia-Pacific region, which is now similar in size to the

number of middle class citizens in North America and Europe combined. This shift in demographic growth and the expected demand for air travel in the region should result in additional opportunities for the aviation leasing industry to expand its offering to Asian airlines. By extension, similar opportunities should arise for Irish based lessors to grow their revenues provided Ireland remains an attractive and efficient location from which to base their operations.

PwC Ireland have been delighted to support the wider aviation industry over the past number of years and would like to take the opportunity to thank all participants who contributed to the preparation of this inaugural report. As ever, PwC Ireland looks forward to working and collaborating with the industry in the coming years. It is intended that collaboration will include a recurring report of this nature designed to capture appropriate industry trends and the views of Irish based lessors to provide for informed policy representation.

1 *Methodology*



1. Methodology



The report seeks to analyse the economic and employment impact of the aviation leasing industry in Ireland, maps its growth since 2012 and features the insights of the participants into the emerging geographical growth trends in the industry out to 2021.

PwC Ireland surveyed a cohort of Irish based aircraft and engine lessors together with participants from the maintenance, repair and overhaul (MRO) industry.

The report is split into three primary sections:



Growth of aircraft fleet and projections to 2021.



Economic and employment impact of the aviation leasing industry in Ireland.



Strengths, weaknesses and threats for Ireland as a location for the aviation leasing industry.

Section 1 of the report examines the Irish owned assets of the participants in the 2016 financial year. All figures contained within this report follow the industry standard of being based in US dollars (\$). These assets relate only to those owned by (and leased from) Irish tax resident entities. These results were analysed against the 2012 equivalent figures to ascertain the growth in the intervening period and projected growth in asset numbers was estimated out to 2021.

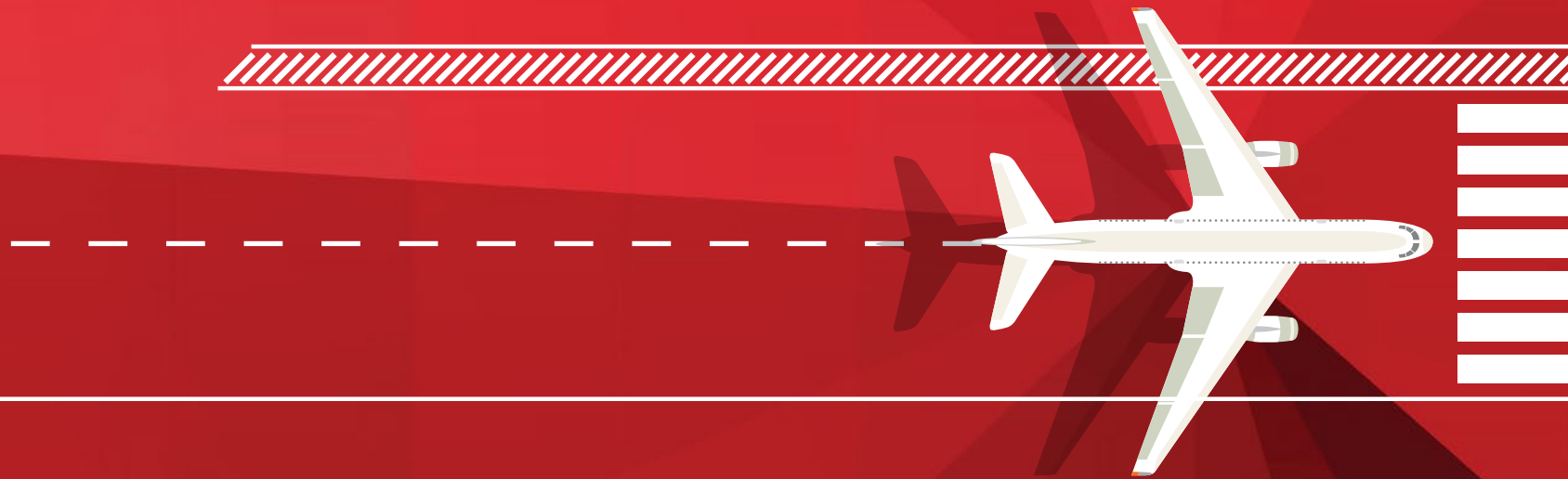
Section 2 analyses the full economy impact of the industry in Ireland. The full economy impact of any organisation or sector is a function of two factors, namely, the value of national economy expenditures and the sectoral composition of this spend. The sectoral composition of spend is material to the extent that spend in sectors with a low import content (e.g. services) has a more substantial impact on the national economy than expenditures in sectors with a high import content.

The full-economy impacts of a \$ increase in expenditure in a defined sector is measured at three levels which describe the progression of the \$ spend through the economy, specifically direct, indirect and induced. By applying the relevant sectoral multipliers and effects (e.g. food, housing and professional services), the full economic impact of aviation leasing companies in Ireland was calculated.

Section 3 provides details of the key features that make Ireland an attractive location for the industry and which have led to Ireland's dominant position as a global aviation leasing centre. In addition, respondents provide feedback on what they see as potential threats to that position. With the demand for people with the requisite skillsets a priority for most industries, Section 3 also reviews the skills that aviation lessors feel are in most demand for the industry and highlights the various initiatives which are being undertaken to address those demands.

2

Key findings



2. Key findings

Aviation leasing companies based in Ireland spent approximately \$581 million (inclusive of payroll related tax and non-recoverable VAT) in the Irish economy in the Financial Year 2016 (FY 2016). Payroll accounted for \$261 million (45%) and non-payroll (payments to Irish suppliers) accounted for \$320 million (55%). This expenditure had a significant contribution to the economy in terms of national output (\$) and employment.

It should be noted that in order to calculate the full contribution to the economy, all taxes (i.e. payroll related tax and non-recoverable VAT) and employees' pensions, shares, savings and overseas expenditure are excluded, before economic multipliers and effects are applied to calculate the full economic impact of \$660m (direct, indirect and induced). The economic model does not include taxes, which also have additional benefit to the Irish Exchequer.

\$660m
Total contribution
to the Irish economy,
excluding tax

4,970
FTE jobs supported
annually in the
Irish economy



Profile of aviation leasing companies' operational expenditure in Ireland



Annual spend in the
Irish economy



Payroll available for
domestic consumption
(after tax, savings, etc.)



Payroll related taxes paid
by the companies and
their employees



Non-payroll spend /
Irish Suppliers
(after non-recoverable VAT)

Impact of aviation leasing companies' operational expenditure in Ireland

The full economic impact (direct, indirect and induced) of the Irish aviation leasing companies' operational expenditure in the Irish economy resulted in a contribution of \$660 million and 4,970 full-time equivalent (FTE) jobs.

Full economic impact



Direct

An aviation leasing company
pays a professional services
company (e.g. accountancy
firm) for their services.



Indirect

The accountancy firm pays
its suppliers for goods
(e.g. IT equipment).



Induced

Employees of suppliers then have
additional disposable income to spend
on household goods and services.

What is clear is that the industry has real presence and tangible substance in Ireland. This is a key differentiator when compared to other leasing hubs.

Irish lessors report growth of 36% in fleet numbers in the five years from 2012 to 2016.

Threats to Ireland's position include foreign tax regimes / initiatives, developments from international tax reforms and the lack of a dedicated representative body for the industry.



The past five years have shown considerable growth in terms of numbers of aircraft and asset value based in Ireland. This is down to a number of factors:



new entrants to the market setting up their leasing platform in Ireland;



existing lessors in Ireland moving more of their portfolio to Ireland;



the renewal of aircraft with newer models and the retirement of older fleet.

Asia is eroding the position of Europe as the primary location for placement of aircraft for Irish lessors. Indeed, Asia is expected to have surpassed Europe by 2018 according to projected estimates.

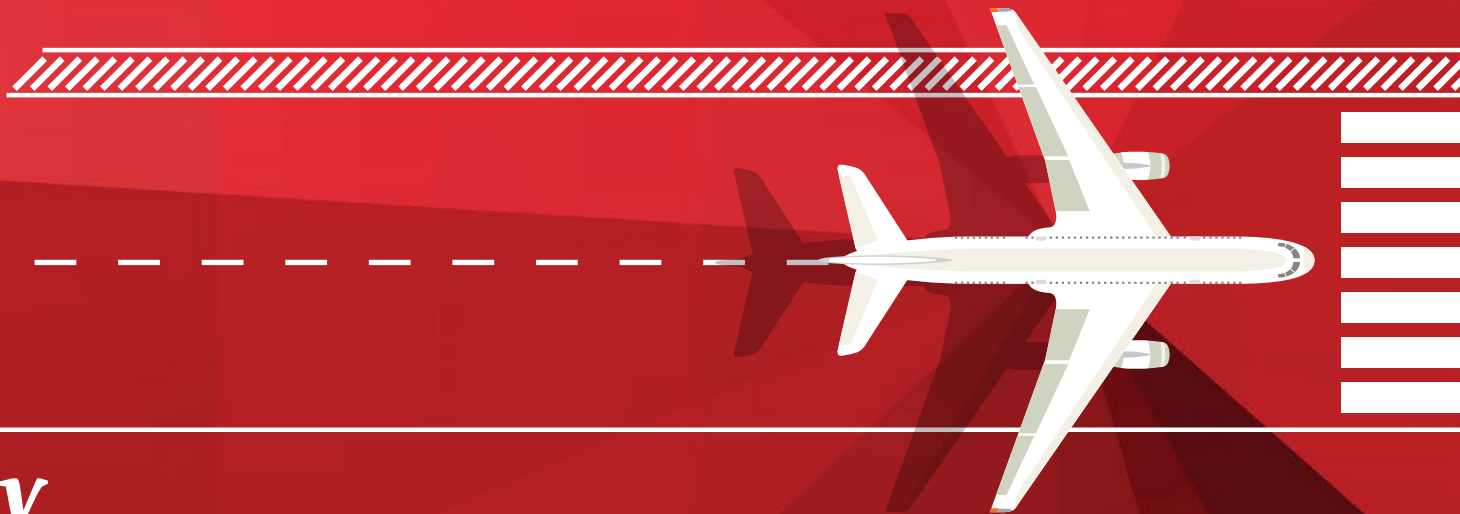
Respondents highlighted the depth of the double tax treaty network, a competitive tax regime, skilled labour availability and the legal and regulatory framework as Ireland's strengths in attracting the industry here. Weaknesses included Ireland's personal tax regime and social infrastructure.



Ireland is best placed to become a world leader in meeting the educational needs of the industry.

3

*An industry
in ascent*



3. An industry in ascent

Growth analysis

Respondents were asked to provide details on their aircraft assets in terms of quantum in the financial year ending in 2016 together with a comparative figure for 2012 and a projected figure for 2021. In addition, respondents were requested to provide data on the regional split of their lease rental income for the financial year ending in 2016.

The past five years have shown considerable growth in terms of numbers of aircraft based in Ireland. This is down to a number of factors:



new entrants to the market setting up their leasing platform in Ireland;



existing lessors in Ireland growing and / or moving more of their portfolio to Ireland;



the renewal of aircraft with newer models and the retirement of older fleet.

The growth trend in absolute numbers for aircraft fleet is projected to continue over the next five years albeit at slightly more moderate levels. This is broadly in line with expected market trends.

Total growth

Overall, growth in aircraft numbers of 36% has been achieved from 2012 to 2016. In the coming years to 2021, respondents expect continued growth with estimates of a 22% increase in the number of aircraft units held by Irish lessors. Respondents indicated that the growth in asset volume terms occurred at even stronger rates between 2012 and 2016. That trend is expected to continue to 2021 and is largely attributed to lessors replacing older aircraft with newer technology.

3.1 Overall Growth (2012 – 2021)

	Actual Growth (2012 – 2016)	Forecasted Growth (2016 – 2021)
Aircraft Numbers	36%	22%



The growth in aircraft assets reported in Ireland from 2012 to 2016 can be in part explained by the shift in aircraft ownership to Ireland which has been reported in industry publications in the past five years. Growth in the coming five years is expected to continue at impressive rates.

Geographical spread - lease income

Europe

Europe was the leading location for lease rental income in 2016, with 34.7% sourced from the region. However, this position had eroded from 2012 when Europe accounted for 46.8% of total lease rental income. This trend is projected to continue to 2021, with lessors reporting that they expect that the region will account for 31.5% of lease rental income come 2021.

Asia

Asia's share of lease rental income increased from 27.7% in 2012 to 32.6% in 2016 and is expected to continue in that vein, with 36.9% of lease rentals being sourced from the region by 2021.

North America

North America as a source of lease rental income for Irish lessors is more stable in the same period providing a consistent share in the decade under assessment. The region accounted for 16.3% of total lease rental income in 2012 which remained fairly static in 2016 with 15.6% of the total global lease rental income being sourced there. In 2021, North America is expected to be a source of 16.7% of total lease rental income.

South and Central America

South and Central America have experienced growth from 2012 to 2016, with the share of lease rental income from the region increasing from 6.7% to 8.6% in the period. That share of lease rental income is expected to increase to 9.9% by 2021.

Middle East

Lease rental income from the Middle East has grown from 2.9% of the global share in 2012 to 6% in 2016. This number is expected to taper by 2021 to a total share of 4.1%.

Africa

African lease rental income performed well between 2012 and 2016, growing from just over 1% of the global share to 2.4%. Lease rental income share for the region is expected to reduce between 2016 and 2021 with the share of global lease rental income expected to decrease to 0.9%.

3.2 Geographic spread lease income 2012 - 2021





Case study: Maintenance, Repair and Overhaul

The MRO industry has been fundamental to the success of Ireland as a global leader in the aviation industry. Historically, MRO companies produced world class skilled aircraft and engine technical and engineering specialists through their apprenticeship programmes. These specialists were greatly sought after and were globally recognised.

Personnel from the MRO industry have been instrumental in developing and building Ireland's dominant position in aviation leasing globally and today many of the people from apprenticeship programmes are now leaders in not just MROs, but leasing companies, airlines, regulators and technical service companies.

The MRO industry has also been a major source of job creation in Ireland specifically in the areas of engineering and technical services. Today, there are three commercial aircraft heavy maintenance MRO providers who, together employ approximately 1,000 people in Dublin and Shannon. In addition to aircraft heavy maintenance, other providers support landing gear and APU maintenance and overhaul for their customers. Heavy maintenance MRO providers in turn support a sub-supply ecosystem. Total employment in the Shannon aviation services cluster is approximately 2,600, of which approximately

half is made up of MRO providers and their suppliers. It was recently reported that one MRO plans to create 150 jobs over the next three years including roles across the areas of engineering, avionics technicians, structures and composite technicians, painters and aircraft operatives.

In terms of customer base, a high volume of MRO revenue is driven by the European market including Ireland, with these revenues expected to grow considerably in the next five years. Business also originates from Asia, Middle East and African markets. Lease transition activity is seen as an area of potential competitive strength for Irish MROs, building on their technical experience and on strong lessor relationships.

The level of demand for apprenticeships has reached new heights with a large excess of applications over number of places. In line with our later discussion on education, maintaining a focus on aviation related technical expertise through third and fourth level education, as well as the promotion of apprenticeships, is vital to continuing the growth of the MRO industry into the future.

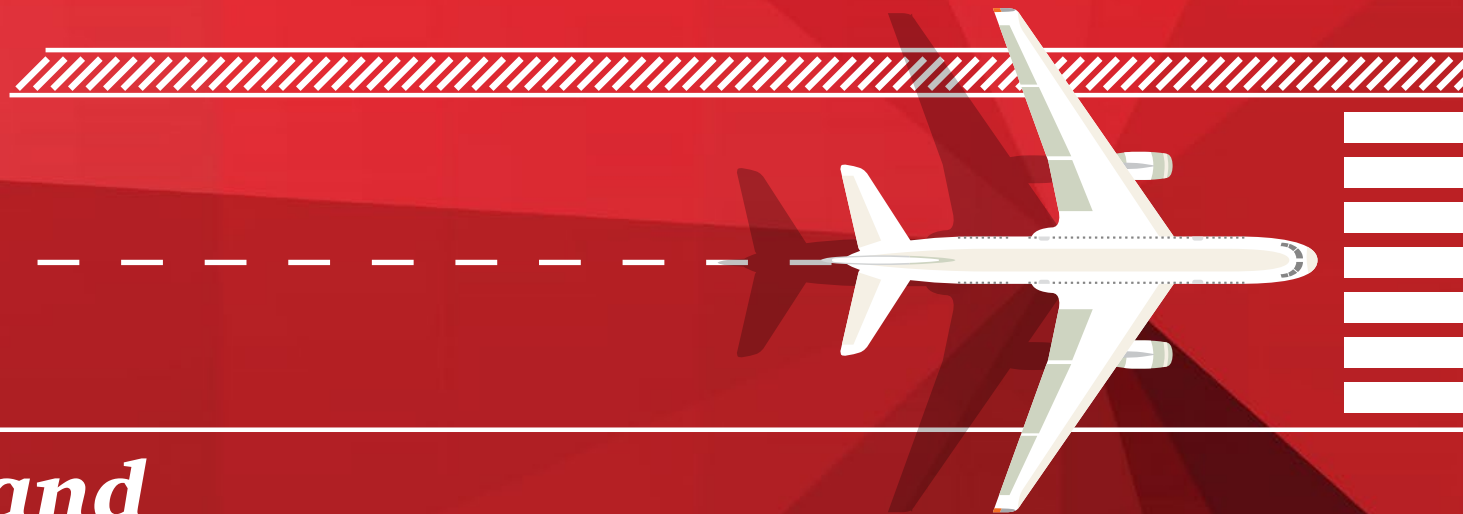
Although demand for apprenticeship programs is high today, this was not the case for the past 10 to 15 years. This has resulted a shortfall of

skilled and qualified technical personnel for the industry. This has been exacerbated by the exponential growth of aviation lessors in Ireland who have also sought to recruit the same personnel. It was suggested by industry respondents that the industry itself and government policy had limited focus on this issue.

The lack of supply of appropriately skilled and trained personnel presents great difficulty for MROs in meeting and supporting growing business volumes as well as oversight of expanding apprenticeship programmes. In addition, Irish MROs are coming under increased pressure from global competitors who have access to lower cost of labour, capital and infrastructure. Local authority rates on aircraft hangars are a particular burden for the Irish MRO industry.

Government and industry support is critical in order to ensure that Irish MROs maintain and grow their position in the global aviation industry, and that they can continue to “anchor” globally mobile lessors in Ireland. While the MRO industry holds its own in the global arena, its success and continued growth is of significant strategic importance to the overall attractiveness of Ireland's aviation infrastructure.

4 *Economic and employment analysis*



4. Economic and employment analysis

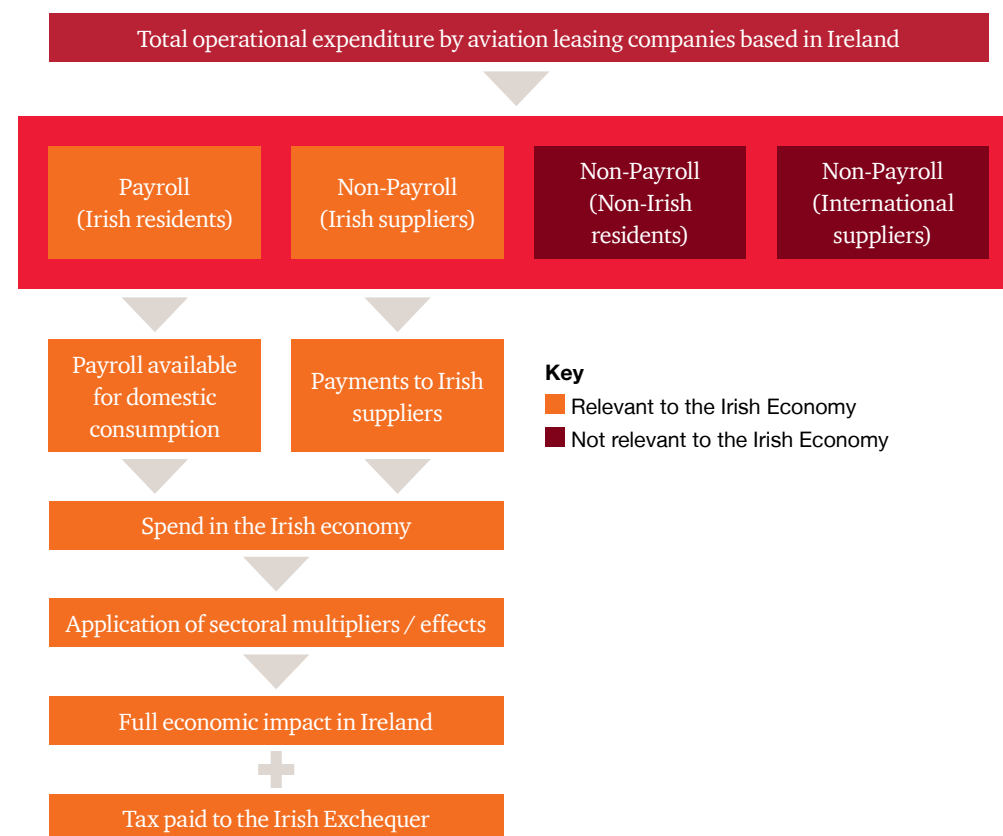
This section presents an overview of the Irish economic benefits attributable to the expenditure of Irish based aviation leasing companies in the financial year 2016. The benefits described in this section focus on the economic impacts derived from the day-to-day operation of these companies (annual operational expenditure).

The methodology used for estimating the economic impact of the aviation leasing sector on Ireland is shown in Figure 4.1 and detailed under the full economic impact section.

Research steps were as follows:

- Determined the average annual aggregated payroll (Irish residents only) and non-payroll (Irish suppliers only) spend across the respondents;
- Grossed up the market to 100%, i.e. based on estimated total number of full time equivalent (FTE) employees working in the aviation leasing sector in Ireland (approximately 1,700) and operational expenditure was increased to represent the full market;
- Reduced total payroll spend by all direct deductions (e.g. taxes and pensions) and estimated savings and out of state expenditures (e.g. holidays), to arrive at an estimate of resultant average annual consumer spend in the Irish economy by employees of aviation leasing companies based in Ireland;
- Reduced the non-payroll spend by the value of all payments made to international / non-national suppliers;
- Determined the sectoral allocation of all generated expenditures (i.e. payroll and non-payroll) in the Irish economy; and
- Applied sector-based multipliers / effects as appropriate, to arrive at an estimate of the full annual economic impact (FTE jobs and output).

4.1 National economic benefits



Operational expenditure in Ireland

Total expenditure

Figure 4.2 shows a breakdown of the annual aggregated operating expenditure (inclusive of payroll expenditure and non-recoverable VAT) by aviation leasing companies in Ireland in FY 2016. Payroll accounts (inclusive of payroll related tax) for 45% (\$261 million) of total operating costs (\$581 million).



Aggregated operational expenditure



Payroll available for domestic consumption



Annual payroll tax

National payroll

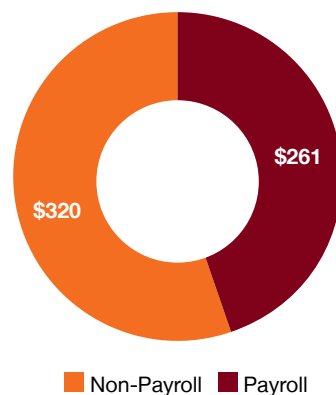
Payroll available for domestic consumption

Figure 4.3 shows the assumed relationship between the aviation leasing companies' payroll spend, and the consumer expenditures of their employees in the Irish economy.

Payroll deductions include:

- **Tax deductions** including employers and employees PRSI, PAYE and Universal Social Charge (USC);
- **Pensions** (employees and employers), **shares and savings**; and
- **Other deductions** including health insurance, company car costs and memberships (e.g. gym and golf). However, this money is expected to be spent directly in the Irish economy and therefore included in the payroll available for domestic consumption.

4.2 High-level breakdown of the annual aggregated operational expenditure (\$m)



4.3 High-level breakdown of the annual aggregated payroll expenditure (\$m)

Payroll spend	\$ (millions)	% of Total	Source
Gross national payroll	\$261	100%	Respondents & PwC derived
Tax deductions (e.g. PAYE, PRSI, USC)	\$111	43%	Respondents & PwC derived
Payroll less tax deductions	\$150	57%	Respondents & PwC derived
Pensions, shares & savings	\$28	11%	Respondents & PwC derived (pensions & shares), CSO (savings)
Expenditure outside the State	\$5	2%	CSO
Payroll available for domestic consumption (inclusive of \$4m of other payroll deductions, e.g. health insurance, company car costs & memberships)	\$117	45%	Respondents & PwC derived

Sectoral breakdown of employee spend

The sectoral composition of these expenditures has an important bearing on the size of the full economy impact. See Figure 4.4 for estimated domestic spend by sector, by Irish resident employees of aviation leasing companies.

4.4 Estimated expenditure by employees based in Ireland (\$m)

Expenditure by sector	\$ (millions)	% of Total
Food, beverage & tobacco	\$18	15%
Clothing & footwear	\$4	3%
Housing (rents & imputed rent, repairs & decoration)	\$33	28%
Fuel & power	\$3	3%
Household equipment & operation	\$4	4%
Transport & communications	\$16	14%
Recreation, education & entertainment	\$9	7%
Miscellaneous goods & services	\$27	23%
Health Insurance	\$3	3%
Total	\$117	100%

Source: Information from Respondents; PwC derived; and CSO, National Income & Expenditure Annual Results 2016 – Consumption of Personal Income (August 2017)

National non-payroll spend (Irish suppliers)

Total spend in procuring Irish goods and services is estimated at \$319 million (excluding non-recoverable VAT of \$1 million). The estimated sectoral distribution of non-payroll spend in the Irish economy is shown in Figure 4.5 below. Property rent / leasing / mortgages and professional fees accounted for 56% of total expenditure.



Non-payroll spend /
Irish Suppliers
(after non-recoverable VAT)

4.5 Sectoral composition of non-payroll spend in Ireland

Expenditure by sector	\$ (millions)	% of Total
Property rent / leasing / mortgages	\$83	26%
Professional fees	\$96	30%
MRO (Maintenance, Repairs & Overhaul)	\$31	10%
Insurance	\$11	3%
Utilities	\$44	14%
Administration	\$12	4%
Travel	\$25	8%
General staff expenditure (e.g. training and meetings)	\$11	3%
Other	\$6	2%
Total	\$319	100%

Source: Information from Respondents and PwC derived.

Full economic impact

Methodology explained

The full economy impact of any organisation / s is a function of two factors, namely:

1. The value of national economy expenditures; and
2. The sectoral composition of this spend.

The sectoral composition of spend is material to the extent that spend in sectors with a low import content (e.g. services) have a more substantial impact on the national economy than expenditures in sectors with a high import content.

The full economy impact of a € / \$ increase in expenditure in a defined sector is measured at three levels which describe the progression of the € / \$ spend through the economy, namely direct, indirect and induced. Explanations of these levels of economic benefits are described in Figure 4.6.

The most commonly applied form of multipliers and effects are:

1. **Output** - the contribution of an additional € / \$ in expenditure to national output; and
2. **Employment** - measures the impact on full-time equivalent jobs (FTEs) in the economy.

Multipliers and effects will vary between economies, reflecting (among other factors) the fact that the import content of different sectors of activity will differ depending on the resource base of the economy. In this report, money spent by the companies (non-payroll) and its employees (payroll) was allocated to the relevant economic sector (e.g. food, housing and professional services). Output multipliers were then used to estimate the direct, indirect and induced impact of this spend on the broader economy. Employment effects were used to estimate the impact of this spend on jobs.

4.6 Multipliers / effects explained*

Economic Impact	Description	Example
Direct	The output and jobs generated by immediate beneficiaries of the additional Irish economy expenditure, due to the expenditure of the companies and their employees.	Impact of spend on Irish suppliers, e.g. professional services companies (accounting, tax, corporate services, IT).
Indirect	The output and jobs generated by the suppliers to the direct beneficiaries.	Impact of the additional spend on the accountancy firm's suppliers, e.g. IT equipment.
Induced	The output and jobs resulting from the additional economy expenditure by employees of suppliers and sub-suppliers.	Income received by retailers as a result of the spending of suppliers' employees.

*See: <http://www.gov.scot/Topics/Statistics/Browse/Economy/Input-Output/Multipliers>, for further details.



Full economy impact of operational expenditure

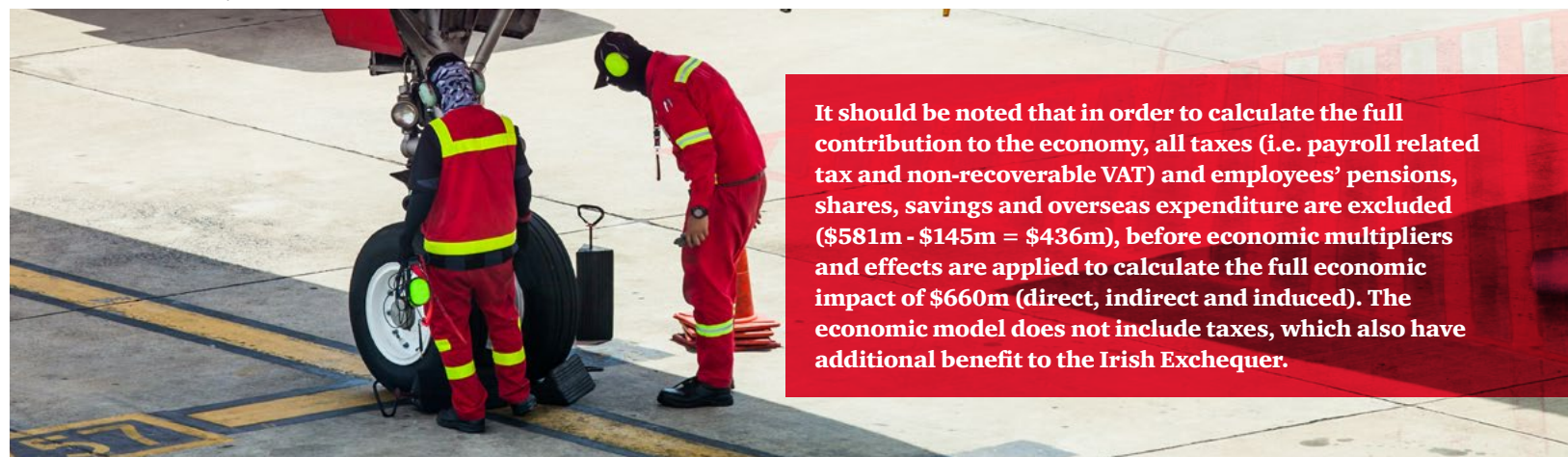
As outlined above, payroll-related spend (after tax, pensions, shares, savings and overseas expenditure) by aviation leasing companies in Ireland is estimated at approximately \$117m in the Irish economy, while an estimated \$320m was paid to Irish providers of goods and services. By applying multipliers / effects, the full economy impact of the aviation leasing sector can be estimated - see Figure 4.7.

Aviation leasing companies in Ireland employ close to 1,700 full time equivalents (FTEs). However, in order to calculate the jobs supported in the Irish economy, 'employment effects' are applied to both the amount spent by employees and the companies' non-payroll expenditure in the Irish economy. Employment effects measure the impact on employment (FTE jobs), throughout the economy arising from a change in the final demand for sectoral output of €1 / \$1, i.e. every €1m or \$1m spent in a particular sector creates a certain amount of jobs. For example, employees from the aviation leasing companies spent an estimated \$18m on food and beverage last year, which created over 300 jobs (direct, indirect and induced) in the domestic economy. Jobs created from the employees' expenditure, together with the non-payroll spend of the aviation leasing companies, supported approximately 4,970 FTE jobs.

4.7 Impact of spend on the Irish economy

	Payroll	Non-Payroll	Total
Spend in Ireland (excluding all taxes)	\$117	\$319	\$436
National output (\$m)			
Direct	\$117	\$319	\$436
Indirect	\$31	\$113	\$144
Induced	\$21	\$59	\$80
Total	\$169	\$491	\$660
Supported Employment (FTEs)			
Direct & Indirect*	1,118	2,739	3,857
Induced	708	405	1,113
Total	1,826	3,144	4,970

*Please note the direct and indirect FTE jobs cannot be split out when using employment effects.
Source: Information from Respondents and PwC derived.



It should be noted that in order to calculate the full contribution to the economy, all taxes (i.e. payroll related tax and non-recoverable VAT) and employees' pensions, shares, savings and overseas expenditure are excluded (\$581m - \$145m = \$436m), before economic multipliers and effects are applied to calculate the full economic impact of \$660m (direct, indirect and induced). The economic model does not include taxes, which also have additional benefit to the Irish Exchequer.

Total contribution of approximately **\$660m** to the Irish economy annually

Approximately **4,970** FTE jobs supported annually in the Irish economy

Case Study: Global Airfinance Journal and Airline Economics Conferences in Dublin (2017)

In addition to the economic impact of the aviation leasing companies in Ireland, Ireland also attracts significant international aviation conferences e.g. Global Airfinance Journal Conference (Convention Centre Dublin) and the Airline Economics Growth Frontiers Conference (Shelbourne Hotel), due to the concentration of aviation related companies in the country. These conferences and some newer entrants to the aviation conference market in Ireland have an additional economic impact on the economy.

The 19th Global Airfinance Journal Conference was held in Convention Centre Dublin from 17th – 19th of January 2017. The event attracted close to 1,700 delegates from a wide range of companies e.g.

- 28% were from airlines representing a combined fleet size of 10,000 aircraft and an estimated current market value (CMV) of \$325,000m; and
- 24% were from lessors – 40 from the leasing top 50 (2016) attended, representing a combined current fleet of 7,777 aircraft.

Over 80% (1,385) of delegates were international. Delegates attended from close to

70 different countries. Delegates from the US and the UK accounted for close to 40% of total attendees.

The Airline Economics Conference was held in the Shelbourne Hotel from 15th – 18th of January 2017. The conference attracted 1,982 international delegates from a wide range of countries.

Fáilte Ireland estimates that each international delegate attending a conference in Ireland is worth approximately €1,643* (\$1,819) to the Irish economy. This accounts for expenditure on a wide range of services, e.g. accommodation, food and drink, entertainment, transport, shopping and conference fee. It should be noted that Ireland hosts a broad range of conferences and that the average spend of delegates attending the aviation conferences is likely to be higher than the average across all conferences.

Assuming that there is an overlap of international delegates attending both conference of approximately 50%, it is estimated that the conferences contributed approximately \$4,900,000 to the Irish economy. This excludes expenditure by Irish delegates.

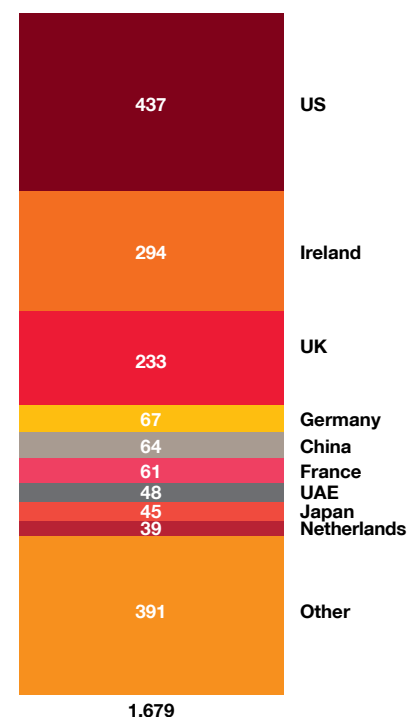
*Source: Fáilte Ireland – value of each international business tourism delegate in 2016 (February 2017)

**Source: Airfinance Journal Statistics, November 2017

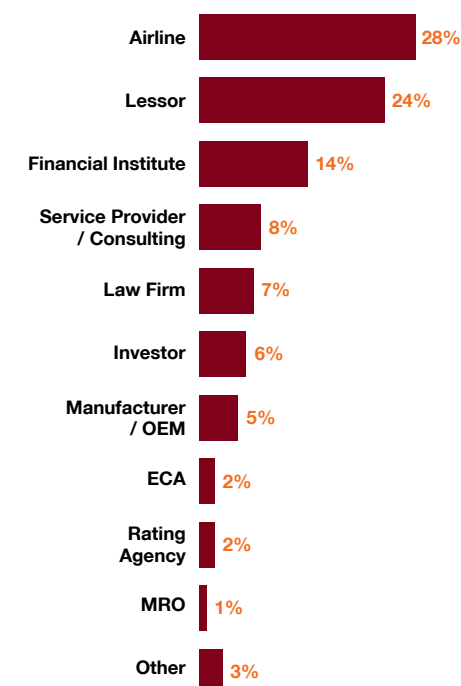
\$4.9m+

Contribution from international delegates attending the Annual Global Airfinance & Airline Economics Conferences 2017

4.8 Global Airfinance Journal delegates by country**

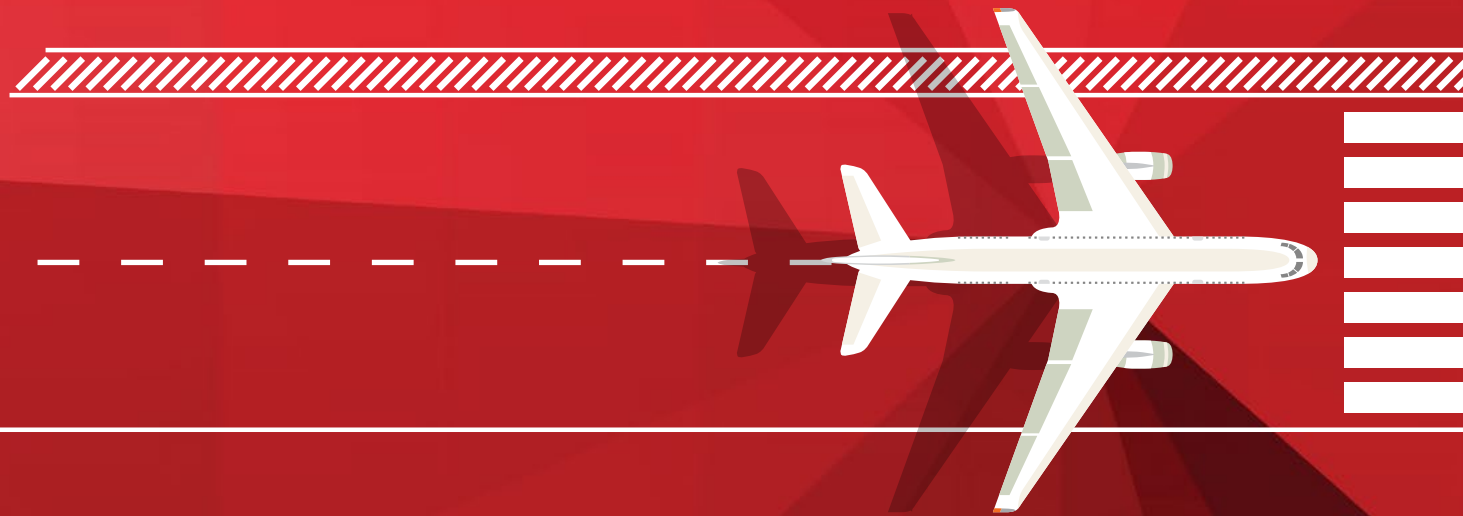


4.9 Global Airfinance Journal delegates by key company types**



5

Strengths, weaknesses and threats



5. Strengths, weaknesses and threats

Ireland's position as a central hub for aviation leasing companies, and the overall expansion of the aviation leasing industry, has been a significant contributor to the success of Ireland as a global international financial services player.

So what makes Ireland so attractive to the aviation leasing industry? Ireland's success can be attributed to many factors including: legacy experience which comes from 40 years involvement in the industry; a taxation regime which provides for a stable and competitive headline rate of corporation tax together with a tax depreciation write-off period of eight years; a comprehensive double tax treaty network with 73 countries currently in effect (and more in the pipeline awaiting ratification and under negotiation); and being recognised as a centre of excellence in this sector, with a highly skilled and experienced workforce.

In order to gain an insight into the key policy areas driving Ireland's success as a top location for establishing an aviation leasing platform, lessors were asked for their thoughts on the underlying policies supporting the attractive environment for the industry.

Strengths



1
*Double tax
treaty network*



2
*Low corporate tax rate
and attractive tax
depreciation*



3
*Availability of
skilled labour*



4
*Legal and regulatory
framework*

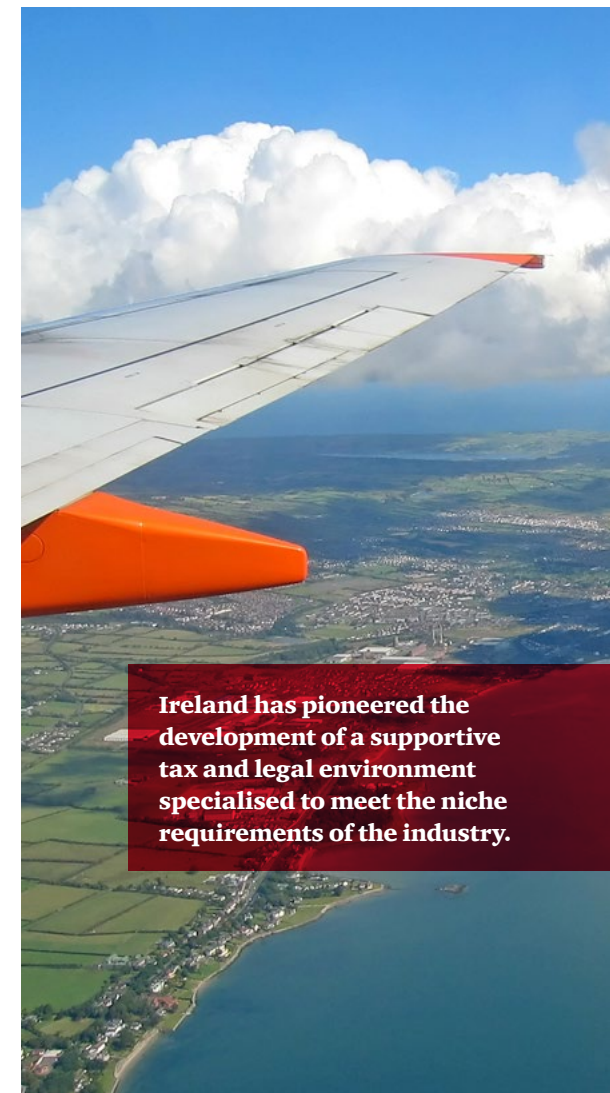
Weaknesses



1
Personal tax regime



2
Social infrastructure



Ireland has pioneered the development of a supportive tax and legal environment specialised to meet the niche requirements of the industry.

Strengths in Ireland for the industry

Double tax treaty network and corporation tax regime

As is widely acknowledged, Ireland's extensive double taxation treaty network plays a key role in creating a positive business environment for lessors. Our findings serve to validate the importance of this network to the industry with Ireland's double tax treaty network coming out on top with 58% of responses citing this as the most important policy area.

The Department of Finance and Revenue Commissioners (the Irish Government agency responsible for customs, excise, taxation and related matters) indicate that they are keenly aware

of the importance of a strong treaty network and are endeavoring to continue to build on the work completed to date. These treaties serve to mitigate, or indeed eliminate in many cases, withholding tax applying to lease rentals in the lessee country.

As the risk of any withholding tax exposure is generally commercially borne by the lessee, the reduction of withholding tax costs can reduce significantly the cost for international airlines of doing business with Irish based lessors. It is often the case that lessees will insist on "no greater obligation" clauses being contained

within lease agreements which will stipulate that, in the event of the existing lessor selling the leased aircraft, that the new lessor must be based in a location which does not create a greater withholding tax obligation for the lessee. In effect, what often results in practice is that the new lessor, for ease of transition, will continue to use an Irish platform to purchase the aircraft.

Ireland has 73 double tax treaties signed to date, with 5 additional treaties either awaiting ratification or under current negotiation. This is an indicator of Ireland's strong ties with economies across the globe and the importance of international trade to the Irish Exchequer.

Other leasing hubs are attempting to close the gap with Ireland in terms of the breadth of their treaty networks. It is therefore clear that the Irish Government, Department of Finance and the Revenue Commissioners need to ensure that the Irish treaty network continues to expand and that certain existing, more limited treaties are updated to enable Ireland maintain its competitive position in this area.

The treaty network prioritisation and expansion is closely followed in importance by the broader elements of Ireland's corporation tax regime, including the EU approved 12.5%

corporation tax rate and the availability of tax depreciation on aircraft over an eight year period.

Availability of skilled labour

Similarly, Ireland's position as a global leader for the availability of skilled labour has once again proven to be another driver of success in attracting business, with respondents citing Ireland's talent pool as another key area. This mirrors the findings in the IMD World Talent Ranking 2017 report.

Per the IMD World Talent Ranking 2017, Ireland's top strengths include its ability to attract and retain talent (ranked number 1 globally) and its skilled labour force (ranked number 5).

Highly experienced support services to the leasing industry have also developed in tandem with the growth of the industry in Ireland including specialised accounting and finance professionals, tax advisers and legal service providers.

This is a reflection of the depth of knowledge which has built up in Ireland and the industry specific training and experience which has been gained by employees working in the industry. In addition, the growth of industry specific courses from a financial and technical perspective has sought to address the demands of the various niche businesses operating in the aviation leasing space in Ireland. Ireland is uniquely placed to take advantage of the experience which has been built up in the country over the past 40 years and to leverage those skills in training and upskilling the next generation.



The Cape Town International Registry (CTIR) holds specified documents in a searchable database. The registration validates an entity's financial interest in a qualifying asset which covers fixed-wing aircraft, helicopters and turbine or turboshaft engines (under certain specifications, for each of the above).

Legal and regulatory framework

The availability of skilled labour is followed by the Irish legal and regulatory framework, which enables lessors to carry out their business efficiently relative to other jurisdictions. The efficient processes offered by the Irish Court system was one of the key strengths highlighted when choosing to locate the Cape Town registry (as agreed under the Cape Town Convention) in Ireland.

In addition, early in 2017, the Irish Government signed an order pursuant to the State Airports (Shannon Group) Act 2014 giving immediate legal effect to the "Alternative A" insolvency provisions of the Cape Town Convention and the associated Aircraft Protocol. Ireland was the first European country to ratify the Cape Town Convention in 2005 but did not at that time make a declaration in relation to the insolvency measures contained in the Protocol.


One impact of this was that the rules in relation to Ireland's corporate insolvency recovery process continued to apply. These rules can allow for a court enforced moratorium on enforcement rights for a period of seventy days (with the possibility of further extension).

One of the benefits of the Cape Town Convention is that it provides certainty, speed and mitigates costs during insolvency and enforcement proceedings in respect of aircraft objects.

By adopting Alternative A, a definite deadline is imposed for an insolvency administrator or debtor and the creditor to negotiate the retention or return of the relevant aircraft object. The insolvent debtor has sixty days following an insolvency related event to either discharge all liabilities due in respect of the relevant aircraft object to the creditor or to return the aircraft object to the creditor. There is also an obligation on the insolvency officer to preserve and maintain the aircraft and its value.

The introduction of these provisions into Irish law brings our insolvency regime in this area in line with those already in place in other jurisdictions, including the USA and the UK and further bolsters Ireland's attractiveness as a location for aircraft financing and leasing.

The implementation of Alternative A was seen as a welcome development and further enhanced Ireland's reputation in the aviation leasing industry. The effective and efficient remedy offered by Alternative A also is of particular significance in the area of aircraft backed securities and bonds as it allows for the possibility of higher credit ratings for securities, with the potential for reduced funding costs for borrowers being an added bonus.



SARP's eligibility requirements include a minimum salary level of €75,000 which is the threshold above which the relief starts, and the employee must have been in full time employment of the transferring company for at least 12 months prior to transfer.

Weaknesses in Ireland for the industry

Personal tax regime

Ireland's personal tax regime has presented a major challenge to many industries with the marginal income tax rate being significantly higher when compared to competitor jurisdictions. The Costs of Doing Business in Ireland 2017 report confirms that the Irish income tax system is the most progressive in the EU. Ireland's highest rate of income tax starts to apply at just below the average industrial wage; by comparison the UK top marginal rate applies at 4.2 times the average industrial wage. Entry to the higher rate of income tax in Ireland occurs at a relatively low level - the standard rate band threshold for a single individual of €33,800 is below the national average wage of €36,899.

Recent Government initiatives such as the Special Assignee Relief Programme or "SARP" have assisted to a degree in making Ireland more competitive. This regime enables assignees moving to Ireland from a country with which Ireland has a double tax treaty or information exchange agreement to avail of tax relief on their earnings in Ireland.

Although a welcome addition in order to assist in attracting talent to Ireland, when compared to other global leasing hub alternatives, this is an area where Ireland still lags behind. The race for talent in the aviation leasing industry spans a number of skillsets, many of which are transferable to other industries. SARP is seen as restrictive in terms of some of its eligibility requirements and it is currently only slated to run until 2020. Indeed, Ireland's personal tax regime is widely seen as a possible stumbling block with regard to the possible relocation of banks / other financial service businesses from the UK after their expected departure from the EU.

Social infrastructure

The Government mandated Housing Agency estimate 20,000 to 25,000 new homes are required to be built each year to meet existing demands. Goodbody Stockbrokers estimate 35,000 builds per annum are needed and at the upper end, Ronan Lyons, the Trinity College Economist estimates a need for 50,000 new homes per annum. Undoubtedly, what is not under dispute is that there is a housing shortage, which is amplified in Dublin.

A December 2017 article in the Irish Times reported enrolment in fee paying schools has returned to levels not seen since the economic boom and the lack of international schools offering an international curriculum has been seen as a possible hurdle to overcome in relation to attempting to attract overseas talent. Initial plans to address this include an announcement that an international school is proposed for Leopardstown in Dublin (opening in September 2018). It will have capacity for 800 students, across pre-primary, primary and secondary.

Both housing and education are areas which the Irish Government are dedicating resources to tackle including the "Rebuilding Ireland" action plan for housing.

Threats to the industry in Ireland

Respondents were also asked for their view in relation to the threats facing the Irish aviation leasing industry. Other countries have observed Ireland's success and are attempting to erode its current dominant position. For example, a number of other leasing hubs are following Ireland's lead by actively expanding their double tax treaty network and seeking favourable terms for mitigating withholding tax on lease rental payments during those negotiations. Aviation finance focused regimes have evolved more recently in Hong Kong and Abu Dhabi, while Singapore also extended its preferential regime during 2017.

In addition, and arguably more concerning for Ireland, some are exploiting their ability to introduce preferential tax regimes. Such regimes may potentially not be permissible in Ireland from an EU State Aid or harmful tax practice perspective.

Competitive tax regimes in other jurisdictions

Competitive tax regimes in other jurisdictions, such as those in Hong Kong and Singapore, came out strongly as the number one threat to the Irish aviation leasing industry for respondents, with 50% of respondents flagging this as their number one concern, and 92% citing this within their top two.

The Irish Government has in the past publically stated that, when it comes to tax initiatives which it will consider introducing, it will “play fair, but play to win” meaning that it will provide “best in class” offerings, which are compliant with the international standards of transparency and anti-avoidance measures as set out by the EU and OECD. In short, those initiatives cannot be preferential to one industry over another.

Some international leasing hubs may currently have additional flexibility in the area of tax policy. However, it remains to be seen if such offerings will be sustainable in the medium term given the continued direction of the global tax environment against perceived anti-abusive measures.

The Irish approach of providing an attractive environment for aviation lessors by expanding and, in the case of some existing treaties further improving, its double tax treaty network is arguably more sustainable. Indeed, it is where Ireland's competitive advantage currently primarily lies and is a position unlikely to be eroded provided the Irish Government continues its efforts in this regard.

Ireland, as an EU and OECD Member State, has publically stated that it is a fully supportive and active participant in the various initiatives to counteract base erosion and profit shifting (BEPS) and also with the European Commission's anti-tax avoidance directive (ATAD). Therefore, future flexibility in the introduction of new initiatives in Ireland would have to be fully compliant with the EU / OECD.

Threats



Competitive tax regimes in other jurisdictions



International tax reforms



Lack of dedicated representative body for the industry



Cost of doing business in Ireland



Brexit



What is clear is that the industry has real presence and tangible substance in Ireland. This is a key differentiator when compared to other leasing hubs.

International tax reforms

From the responses supplied to the survey, what is clear is that the industry has real presence and tangible substance in Ireland. Although the industry may never compare to other substantial industries in Ireland in terms of pure headcount, what is evident is that the leasing industry personnel based in Ireland comprise the key decision makers and individuals in senior management positions. In addition to C-suite level employees, senior employees with extensive experience in commercial areas including sales and origination, risk, finance, tax, treasury, contract management, corporate finance, legal counsel, technical / asset management and human resources are also based here.

This is a key differentiator for Ireland when compared to competitor leasing hubs in that it insulates the industry to some extent from the ongoing international tax developments which will impact lessors with low functional substance.

To provide more background and explain this further, international tax planning has received significant attention at government level globally over the last number of years. The EU and OECD in particular, led the charge in the creation of new anti-abuse initiatives to counteract the perceived manipulations of tax rules both domestically and internationally. Those developments raised the bar significantly in relation to one area which should be of particular concern to aviation lessors, namely the prevention of granting tax treaty benefits in inappropriate circumstances.

Under the new rules, treaty benefits could be denied if there is insufficient substance (e.g. people, assets, risk, etc.) in an entity in receipt of the treaty benefits (i.e. the lessor) in its jurisdiction of tax residence.

Whilst Ireland has a highly competitive and transparent tax regime, the new rules which Ireland will have to implement under the European Commission's Anti-Tax Avoidance Directive (ATAD) could potentially erode that competitiveness further, especially with regard to the tax deductibility of interest expense.

The aviation leasing industry is not unique in terms of its high use of debt funding. Indeed, the ATAD recognises other highly leveraged industries and seeks to provide carve outs and relief for those industries under the new proposals. This is an area which the Irish Government should consider when drafting and implementing the new legislation.

Any interruption of treaty access, however temporary, can have significant consequences economically, especially in a time of historically low lease rental margins. Irish based lessors with substance in Ireland should be able to mitigate that risk.

Lack of dedicated representative body for the industry

A dedicated representative body for the industry is something that respondents see as a priority. Due to the unique features of the industry, and the various international developments which can impact it, a dedicated body which would represent the Irish industry players would be highly advantageous to the industry in Ireland. This could be used as a potential conduit to facilitate communication between the Irish Government and the industry which could assist in maintaining and potentially improving Ireland's position as a global leasing hub.

Cost of doing business in Ireland

Costs of doing business in Ireland feature lower on the threats list. The results in the Costs of Doing Business in Ireland 2017 report issued by the National Competitiveness Council in June 2017 showed that Ireland performed well in certain aspects in terms of the costs of doing business (for example, with year on year labour costs growth lower than the average EU 28

growth from 2011 to 2016) and less successfully in others (a case in point being the growth rates in prime office units in Dublin being over 3 times the equivalent rate in London City). The view of respondents that the cost of doing business is not a significant threat reflects the fact that many of Ireland's competitor jurisdictions in the industry are high cost economies.

Brexit

Finally, Brexit appeared as the lowest threat for the respondents. Brexit and the future relationship which Ireland and the EU will have with the UK is currently under negotiation. However, as importation of the aircraft into the jurisdiction of use is usually the responsibility of the lessee, it will be the UK based airlines who will ultimately bear this risk. In addition, to the extent that Brexit gives rise to more challenging regulatory or trading conditions for UK based airlines, given leasing is a global industry, lessors have the ability to mitigate this risk by relocating assets in alternative geographical markets.





Education needs / gaps

With the rapid expansion of the aviation leasing industry comes a greater demand for an appropriately skilled workforce. The ability to draw from a highly skilled pool of individuals is central to Ireland's success as an attractive location for the industry, and continued focus and development in this area is vital in maintaining this position.

With this in mind, our survey sought to identify the particular skills and functions within the industry that are most in demand by lessors, with a view to identifying if any gaps exist in the current marketplace. The skills presented included technical, pricing, credit risk, accounting and tax, aircraft marketing and commercial, contract and lease management and legal. Figure 5.1 below represents the various skill sets in order of demand, based on a weighted average of the rankings provided by respondents.

Skillset demand

Contract and lease management was the key skill area flagged by participants as essential to their future business operations, with 75% of lessors citing this within their top three in demand skillsets.

A combined 67% of participants considered the area of marketing and commercial to be within the top three skills most desired by employers, with 33% of respondents considering it to be their most sought after skill.

This is unsurprising given the level of activity the market is currently experiencing, resulting in a clear need for individuals capable of managing aircraft transactions, including commercial negotiations, subsequent aircraft placement, etc.

Demand for qualified legal counsel is marginally ahead of the rest of the skillsets surveyed with pricing and financial analysis, technical, and accounting and tax qualifications showing very similar levels of demand.

Credit risk was considered the skillset in least demand which suggests the labour market seems to be sufficiently meeting the requirements of the industry in this area. The benefit of an increased focus on aviation finance related courses in recent years may alter these priority levels as those graduates enter the marketplace.

5.1 Level of demand of certain skillsets



Educational supports currently available

A fundamental component of meeting this current and future skills demand is the provision of appropriate third level and post-graduate courses. In the 2015 National Aviation Policy (NAP) for Ireland, the Irish Government recognised the need for an expansion of a broad spectrum of training centres and post-qualification courses.

In recent years, new education paths have been introduced with a focus on aviation finance. Some higher level courses and masters programmes have been established across the country for those wishing to pursue a career

across a range of sub specialties within the aviation industry.

Given the scale of the industry in Ireland and the associated demand for a specialised workforce, higher education courses in the area extend from diplomas right up to masters degrees, covering a broad range of specific aviation requirements, reflecting some of the skills desired by industry players.

The UCD Smurfit Business School Masters (MSc) is the only Masters qualification for Aviation Finance in Europe.

The Masters is very much a collaborative effort with the aviation leasing industry. Highly credited professionals from the industry have been immersed in the programme since its inception. Since the launch in April 2016, individuals such as Norman Liu (former GECAS Chief Executive & Chairman), joined the programme as an adjunct professor in 2017 and many other leading industry individuals frequently lecture at the Masters programme. Indeed, the Head of the Masters Programme is Patrick Blaney, former Chief Executive at GPA.

The aviation leasing industry has contributed to the Masters programme not only financially, but by having a significant input into the syllabus and the curriculum providing guest lecturers. The companies involved all take on graduates directly from the programme.

However, in order to safeguard Ireland's position and ensure an ongoing stream of qualified industry personnel, more educational programmes are needed. These programmes are a key source of Ireland's attractiveness and Ireland has the opportunity to become a true centre of excellence in developing human capital for the industry.

The volume of international participants on the Masters in Aviation Finance points to the global demand. However, Ireland, and the industry here, may benefit from a greater volume of Irish students graduating from that Masters or similar programmes. Therefore, a more formal strategic plan to ensure the current and future skills requirements of the industry are identified and provision for same is delivered should be a priority area of focus for the industry and Irish Government alike.

Higher Level Courses with a focus on Aviation Finance include:

- **Diploma in Aviation Leasing and Finance, Law Society;**
- **Diploma in Aviation Leasing & Finance, University of Limerick;**
- **Certificate in Aircraft Acquisition and Finance, IT Carlow;**
- **Diploma in Aviation Leasing & Finance, National Aviation Institute;**

At the moment there are a number of Masters programmes on offer including;

- **MSc Aviation Finance, UCD Smurfit Business School;**
- **MBA with Specialist Aviation Management Electives, University of Limerick.**

Based on survey responses many lessors engage in direct sponsorship of third and fourth level courses, investing considerable amounts of finance into third level institutions with a view to developing the Irish talent pool.



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