



DEMONSTRATING THE VALUE OF

Macclesfield College

EXECUTIVE SUMMARY

March 2014

ANALYSIS OF THE SOCIAL & ECONOMIC IMPACT OF LEARNING

emsi



INTRODUCTION

Macclesfield College (MACC) creates value in many ways. The College is committed to putting learners on the path to success and plays a key role in helping them increase their employability and achieve their individual potential. With a vast range of courses and apprenticeships, the College's provision enables learners to acquire qualifications and develop the skills they need in order to have a fulfilling and prosperous career. The College also provides an excellent environment for learners to meet new people and make friends, while participation in College courses improves the learners' self-confidence and promotes their mental health. All of these social and employment-related benefits have a positive influence on the health and well-being of individuals.

However, the contribution of MACC consists of so much more than solely influencing the lives of learners. The College's provision supports a range of employment sectors in its service region, referred to as Cheshire & Warrington and defined as Cheshire East, Cheshire West, Chester, and Warrington in the North West of England. This provision supplies employers with the skilled workers they need to make their businesses more productive. The expenditure of MACC, along with the spending of its staff and its learners, further supports the local economy through the output and employ-

ment generated by local suppliers. Lastly, and just as importantly, the economic impact of MACC extends as far as the Exchequer in terms of increased tax receipts and decreased public sector costs.

In this report we aim to assess the economic impact of MACC on its key stakeholder groups: learners, society, taxpayers, and the local community. The fact that learning makes a difference to these groups is well known, but comparatively little research has been done to quantify the monetary value of the impacts. Some of the more recent studies include Fujiwara's (2012)¹ analysis of the impact of adult learning and the March 2010/11 study commissioned by the Department for Business, Innovation and Skills (BIS)² on the economic impact of the FE Sector. Although the approaches used in these and other similar studies vary, they all contribute valuable information to the growing body of evidence that proves the value of investing in education.

The approach in this study is twofold. We begin with a standard investment analysis to determine how the investments in MACC will perform for a given investor

1 Daniel Fujiwara, 'Valuing the Impact of Adult Learning' (National Institute of Adult Continuing Education: Leicester, 2012).

2 Rachel Beaven et al, 'Measuring the Economic Impact of Further Education' (Department for Business, Innovation and Skills, BIS Research Paper Number 38: London, March 2011).

ACKNOWLEDGEMENTS

EMSI gratefully acknowledges the excellent support of Macclesfield College in making this study possible. Special thanks go to Mr Simon Andrews, Principal, who approved the study, and to the research staff at the College who collected and organised much of the data and information requested. Any errors in the report are the responsibility of the authors and not of any of the above-mentioned institutions or individuals. To see full documentation of the study, please contact the College.

over time. The investors in this case are learners, society, and taxpayers, all of whom pay a certain amount in costs to support the learning activities at MACC. The learners' investment consists of their direct outlays, such as those for tuition fees and books, plus the opportunity cost of spending time learning opposed to earning income through employment. Society invests in learning by forgoing the services that it would have received had government not funded the College and the business output that it would have enjoyed had learners been employed instead of learning. Taxpayers contribute their investment through government funding via organisations such as the Skills Funding Agency. In return for these investments, learners receive a lifetime of higher earnings, society benefits from an expanded tax base and a reduced demand for social services, and taxpayers benefit from higher tax receipts and avoided public sector costs. To determine the feasibility of the investment, the model projects benefits into the future, discounts them back to their present value, and compares them to their present value costs. Results of the investment analysis for learners, society, and taxpayers are displayed in the following three ways: 1) net present value of benefits, 2) rate of return, and 3) benefit/cost ratio.

The second component of the study focuses on the economic impacts created by MACC on the local business community in Cheshire & Warrington. Regional

economic impact analysis is distinct from investment analysis in that it focuses on a single time period and does not project impacts into the future, nor does it factor in costs incurred by stakeholders. To derive results, we rely on a specialised input-output (IO) model to calculate the additional income created in Cheshire & Warrington's economy as a result of the increased consumer spending and added skills generated by MACC and its learners. Results of the regional economic impact analysis are measured in terms of the added income created by the following three effects: 1) impact of staff and College expenditure, 2) impact of learner expenditure, and 3) impact of the skills acquired by learners still active in Cheshire & Warrington's workforce.

Data and assumptions used in the study are based on several sources, including the 2012-13 Individual Learner Records (ILR) reports from MACC, industry and employment data from Nomis official labour market statistics, demographic and earnings data from the Office for National Statistics (ONS), and EMSI's input-output model. The study applies a conservative methodology and follows standard practice using only the most recognised indicators of investment effectiveness and economic impact. For more information on the data used to derive the results, we encourage our readers to contact the College for full documentation of the study.

STUDY HIGHLIGHTS

The results of this study show that MACC has a significant positive impact on its main stakeholder groups: learners, society, taxpayers, and the local business community. Using a two-pronged approach that involves an investment analysis and a regional economic impact analysis, we calculate the benefits to each of these groups. Key findings of the study are as follows:

INVESTMENT ANALYSIS

BENEFITS TO LEARNERS

- Learners as a whole paid a total of **£2.3 million** to cover the cost of tuition fees and books and supplies at MACC in 2012-13. All learners also forwent **£24.4 million** in earnings that they would have generated had they been working instead of learning.
- In return for the monies that learners invest in MACC, they will receive a present value of **£116.9 million** in increased earnings over their working lives.
- Every £1 that learners pay for their education at MACC yields **£4.40** in higher future wages. This translates to a **15.2%** annual return on their investment.

BENEFITS TO SOCIETY

- Society as a whole invested **£54.2 million** in MACC through direct outlays and the loss of potential output from learners who spent time at the College rather than working.
- In return, society in the UK will receive a present value of **£282.9 million** over the course of the learners' working lives, in the form of an expanded tax base and a

variety of social benefits related to reduced crime, lower unemployment, and increased health and well-being.

- Society will receive **£5.20** in benefits in return for every £1 invested in MACC. The average annual return on investment is **18.1%**.

BENEFITS TO TAXPAYERS

- Taxpayers in the UK paid **£7.8 million** to support the operations of MACC in 2012-13.
- The net present value of the added tax revenue stemming from the learners' higher lifetime incomes and the increased output of businesses amounts to **£45.2 million** in benefits to taxpayers. Avoided costs to the public sector adds another **£2.5 million** in benefits due to a reduced demand for government-funded social services in the UK.
- Taxpayers see an average annual return of **20.6%** on their investment in MACC. The corresponding benefit-cost ratio is **£6.10** in benefits returned for every £1 in costs.

REGIONAL ECONOMIC IMPACT ANALYSIS

IMPACT OF STAFF AND COLLEGE EXPENDITURE

- MACC employed **212** full-time equivalent (FTE) staff in 2012-13. Staff costs amounted to **£6.5 million**, much of which was spent in Cheshire & Warrington to purchase groceries, clothing, and other household goods and services.
- The College is itself a buyer of goods and services and spent **£3.7 million** to support its operations in 2012-13. This expenditure further benefited many local suppliers in Cheshire & Warrington.
- The net impact of staff and College expenditure in Cheshire & Warrington comes to approximately **£7.7 million** in added income in the regional economy each year.

IMPACT OF LEARNER EXPENDITURE

- MACC learners who relocate to Cheshire & Warrington from outside of the area spend money at local shops to buy books and supplies, purchase groceries, rent accommodation, pay for transport, attend sporting events, etc.
- The expenditure of MACC's non-local learners annually adds approximately **£96.9 thousand** in income to Cheshire & Warrington's economy.

IMPACT OF ADDED WORKFORCE SKILLS

- Many of MACC's learners stay in Cheshire & Warrington. Their enhanced skills and abilities bolster the output of local employers, leading to higher regional income and a more robust economy.
- The accumulated impact of former MACC learners who are currently employed in the regional workforce amounts to **£113.2 million** in added income in Cheshire & Warrington's economy each year.

TOTAL IMPACT ON LOCAL BUSINESS COMMUNITY

- Altogether, the economic contribution of MACC to the local business community in Cheshire & Warrington is **£121 million** each year.
- Total added income created by the College and its learners is equal to **0.5%** of the total economic output of Cheshire & Warrington and represents roughly **4,839** average wage jobs.

METHODOLOGY & RESULTS

MACC generates a wide array of benefits. Learners benefit from higher lifetime earnings, society and taxpayers benefit from an expanded tax base and avoided social costs, and the local business community benefits from increased consumer spending and higher skill levels in the workforce. In this study, MACC investigates the benefits it creates to each of its main stakeholder groups, i.e., learners, society, taxpayers, and the local business community. The following two analyses are presented: 1) investment analysis, and 2) regional economic impact analysis. Benefits to learners, society, and taxpayers fall under the investment analysis, and benefits to the local business community fall under the regional economic impact analysis. The methodology and results for both of these analyses are described more fully below.

by Level 1, which comprised 24% of all enrolments.

In order to go to the College and depending on their level of funding, learners at MACC pay money to cover the cost of tuition fees and purchase books and supplies. All learners also forgo earnings that they would have generated had they been working instead of learning. Together these two cost factors comprise the learners' total investment in their education at MACC, equal to £26.7 million in 2012-13 (the sum of £2.3 million in tuition fees, books, and supplies and £24.4 million in forgone earnings). This translates to an average cost of £4,452 per learner, the bulk of which comprises the opportunity cost of spending time learning rather than working.

INVESTMENT ANALYSIS

Investment analysis is the process of evaluating total costs and measuring these against total benefits to determine whether or not a proposed venture will be profitable. If benefits outweigh costs, then the investment is worthwhile. If costs outweigh benefits, then the investment will lose money and is thus considered unprofitable. In this section, we consider MACC as an investment from the perspectives of learners, society, and taxpayers. The backdrop for the analysis is the entire UK economy.

Benefits to Learners

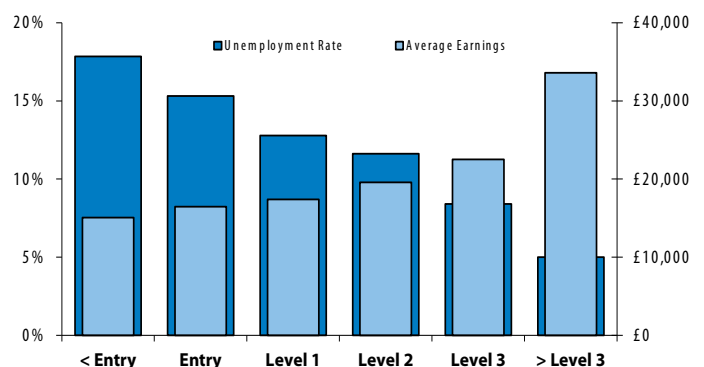
In 2012-13, MACC served 5,998 unique learners across various qualifications and levels. Table 1 shows the breakdown of enrolments at MACC by education level, beginning with entry level up through greater than Level 3. As indicated, the bulk of the College's provision was at Level 3, comprising 33% of all enrolments, followed

TABLE 1. Breakdown of enrolments at MACC, 2012-13

EDUCATION LEVEL	%
Entry Level	9%
Level 1	24%
Level 2	17%
Level 3	33%
> Level 3	16%
Total	100%

Source: Data supplied by MACC.

FIGURE 1. Unemployment rate and average annual earnings by education level received by individuals in Cheshire & Warrington at the midpoint of their career



In return for the costs of education, learners receive a stream of higher future earnings that continues to grow throughout their working lives. As shown in Figure 1, mean income levels received by average-aged workers at the midpoint of their career increase as individuals attain higher levels of education. Employment prospects also increase, so unemployment levels decrease as learners gain higher education levels. Table 2 shows the average lifetime earnings that learners can expect to receive at each education level.

The marginal differences between education levels form the basis for determining the earnings benefits that accrue to learners in return for their education investment. For example, the average Level 3 achiever from MACC will see an increase in earnings of £2,948 each year compared to someone with Level 2 qualifications. This amounts to a present value of approximately £100,248 in higher earnings over a working lifetime.

To calculate the learners' return on investment, we use the differences in wages to attach a monetary value to the learners' achievement level at MACC in 2012-13. We then project this earnings increase into the future over the course of the learners' working career by applying the well-known human capital earnings function developed by Jacob Mincer, where earnings gradually increase from the time learners enter the workforce, come to a peak shortly after the career midpoint, and then dampen slightly as learners approach retirement. The result is a stream of projected future benefits tailored to the learners' specific achievement levels at MACC.

TABLE 2. Average lifetime earnings by education level received in Cheshire & Warrington, undiscounted

EDUCATION LEVEL	EARNINGS	DIFFERENCE
< Entry level	£512,579	n/a
Entry	£559,224	£46,645
Level 1	£591,364	£32,140
Level 2	£665,155	£73,791
Level 3	£765,403	£100,248
> Level 3	£1,142,139	£376,735

Source: Derived from data supplied by ONS. Figures are weighted according to the specific gender and ethnicity profile of the MACC learner population.

TABLE 3. Present value of benefits and costs, learner perspective (£ thousands)

A. Present value of future earnings stream	£116,907
B. Present value of learner costs	£26,703
Net present value (A – B)	£90,204
Benefit/cost ratio (A / B)	4.4
Rate of return	15.2%

Source: EMSI.

The final step is to discount the stream of future earnings to the present in order to account for the time value of money. For the learner perspective we assume a discount rate of 3.5%. The present value of the benefits is then compared to the costs that learners pay for their education (i.e., tuition fees and forgone earnings) to derive the investment analysis results, expressed in terms of a net present value, benefit/cost ratio, and rate of return. Results appear in Table 3.

As shown in the table, the present value of the higher future earnings that accrue to learners yields a cumulative sum of £116.9 million. Costs are provided in the second row of Table 3, equal to £26.7 million, which includes tuition fees, books and supplies, and the opportunity cost of time. By dividing the £116.9 million in benefits by the £26.7 million in costs, we derive a benefit-cost ratio of 4.4. This means that, for every £1 learners invest at MACC in the form of tuition fees and forgone earnings, they will receive a cumulative £4.40 in higher future earnings over the course of their working life. Recall that the bulk of the learners' investment comprises their opportunity cost, so even if they spend little to no money on tuition fees, this does not necessarily mean that their returns will also have a correspondingly small value.

The rate of return is perhaps the most recognised indicator of investment effectiveness. Given the cost of education and the stream of associated future benefits, the rate of return indicates how much a bank would have to pay a depositor of like amount to yield an equally rewarding stream of future payments. Table 3 shows MACC learners earning an average annual rate of return of 15.2% on their investment of time and money. This is an impressive return compared, for example, to the less than 3% return per annum that can be expected from saving money in today's Individual Savings Accounts (ISAs).

Benefits to Society

MACC is in many ways a social enterprise. It aims to improve the lives of young people and adults by increasing their employability and raising their individual potential. It helps to create shared wealth in the UK economy through the higher incomes of learners and the increased output of businesses. Further, it tackles social problems such as crime, unemployment, and poor lifestyle habits by positively influencing the health and well-being of its learners.

From the perspective of society, the social value created by MACC takes on two forms. The first and largest component is the added income created in the UK. As discussed in the previous section, learners earn more

because of the skills and qualifications they acquire while attending MACC. Businesses also earn more because the enhanced skills of learners make capital more productive (i.e., buildings, machinery, and everything else). This in turn raises profits and other business property income throughout the national economy. Together, increases in earnings and business output stimulate corresponding increases in value added, thereby raising prosperity in the UK and expanding the tax base for society as a whole.

MACC's social value also consists of the savings that accrue to society through the improved lifestyles of learners. Learning is statistically correlated with a variety of life changes that generate social savings in three main categories: 1) health, 2) crime, and 3) unemployment. Health savings include avoided medical costs associated with smoking, obesity, and mental disorders. Crime savings consist of reduced security expenditure and insurance administration, lower victim costs, and reduced Criminal Justice System expenditures. Unemployment savings comprise the reduced demand for income assistance and Jobseeker's Allowance benefits. By combining data sets that relate learning to improved social behaviour, we are able to quantify how education contributes to the lowering of social costs and ultimately improves quality of life.

Table 4 shows the present value of the added income and social savings that occur in the UK over the working lifetime of MACC learners. As shown, added income amounts to a present value of £273.9 million, due to the increased lifetime earnings of learners and associated increases in business output. Social savings amount to £9.1 million, the sum of health, crime, and unemployment savings in the UK (see also Figure 2). Altogether, the total social value of MACC is £282.9 million. Note that the figures in Table 4 have been adjusted to account for counterfactual outcomes where MACC does not exist.

In order to calculate society's return on investment, we must first determine what it cost society to support MACC during the reporting year. Costs to society break down into two main categories, direct outlays and opportunity costs. Direct outlays simply refer to MACC's operating and non-operating revenues, equal to £9.7 million in 2012-13. Opportunity costs refer to the loss of earnings and output that would have been generated in the UK economy had learners chosen to work full-time rather than learning. Opportunity costs also include the government services that would have been undertaken had taxes been collected on the incomes that learners forgo. Together direct outlays and opportunity costs equal £54.2 million in costs to

TABLE 4. Present value of added income and social savings that accrue to society (£ thousands)

	TOTAL
ADDED INCOME	
Increased income in the UK	£273,860
SOCIAL SAVINGS	
Health savings*	£2,337
Crime savings	£5,979
Unemployment savings†	£741
Total	£282,917

*Includes savings from reduced smoking, obesity, and mental disorders.

† Includes savings from a reduced number of JSA claimants.

Source: EMSI.

FIGURE 2. Present value health, crime, and unemployment savings to society (£ thousands)

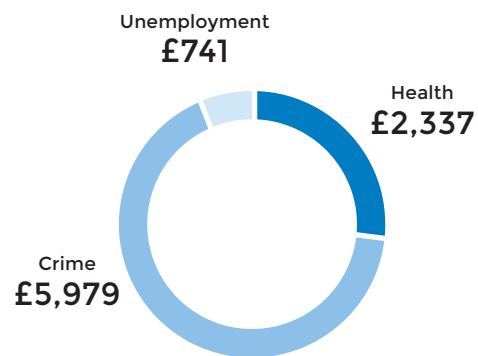


TABLE 5. Present value of benefits and costs, social perspective (£ thousands)

A. Present value of social benefits	£282,917
B. Present value of social costs	£54,186
Net present value (A - B)	£228,731
Benefit/cost ratio (A / B)	5.2
Rate of return	18.1%

Source: EMSI.

society during the reporting year.

Table 5 shows the investment analysis results. In return for the £54.2 million that society invests in MACC, it receives a net gain (in present value terms) of £228.7 million. The associated benefit-cost ratio is £5.20 for every £1 spent, and the average return on investment is 18.1% annually.

Benefits to Taxpayers

Benefits and costs under the taxpayer perspective only look at the monetary gains and losses that accrue to the public sector as a result of MACC. Learners earn more, which means they make higher income tax pay-

ments and National Insurance contributions. The portion of their higher earnings that learners spend also leads to higher value added tax (VAT) receipts. Further, as employers increase their output and make more purchases for supplies and services, they benefit the Exchequer through their higher corporation tax and VAT payments. Altogether, the present value of the added tax receipts that accrues to taxpayers amounts to £45.2 million.

A portion of the social savings enjoyed by society also accrues strictly to taxpayers. As learners become more employable, the demand for Jobseekers' Allowance benefits reduces. Learners put less of a demand on the National Health Service (NHS) for medical treatment as a result of their improved health habits. Further, the reduced probability that learners will commit criminal offences leads to a reduced demand on the Criminal Justice System for law enforcement services. Figure 3 illustrates in present value terms how the £9.1 million in health, crime, and unemployment savings to society translates to £2.5 million in savings to taxpayers. These represent the monies that taxpayers do not have to spend as a result of the reduced demand for government-supported social services.

Summing the present value of the added tax revenues and savings to taxpayers yields £47.7 million (net of the same counterfactual adjustment applied to the social perspective). This value appears in the top row of Table 6. Also shown in the table are the costs to taxpayers,

equal to £7.8 million. These represent the total funding received by MACC from taxpayers in 2012-13.

By comparing taxpayer costs to the £47.7 million in benefits, we derive a benefit/cost ratio of 6.1. This means that for every £1 of public money invested in MACC, taxpayers receive a cumulative value of £6.10 over the course of the learners' working lives. This translates to a 20.6% annual return on investment to taxpayers for their support of MACC, again a solid investment that compares favourably with other long-term investments in both the private and public sectors.

REGIONAL ECONOMIC IMPACT ANALYSIS

MACC promotes economic growth in Cheshire & Warrington in a variety of ways. The College is an employer and a buyer of goods and services, while the living expenses of learners from outside of the region benefit local businesses. In addition, MACC is a primary source of education to local residents and a supplier of trained workers to local industry.

In this section we examine the economic impacts of MACC on the local business community through the increased consumer spending and enhanced business productivity generated by the College and its learners. The impacts reflect the economic relationships among Cheshire & Warrington's industries and are calculated using EMSI's proprietary input-output (IO) model. The model places particular reference on how much each industry purchases from every other industry by using NUTS3 (county and unitary authority level) area data from the Office for National Statistics' (ONS) Supply and Use Tables (SUTs), as well as regional and national industry jobs totals and national sales-to-jobs ratios. The results are then expressed in terms of income (as opposed to sales) in order to present a more accurate picture of the College's actual impacts by accounting for monies that leave the economy.

The following pages present the results of the analysis broken down according to the following three effects: 1) impact of staff and College expenditure, 2) impact of the expenditure of learners who relocate to Cheshire & Warrington to attend the College, and 3) impact of the added skills of former MACC learners who are still employed in Cheshire & Warrington's workforce.

Impact of Staff and College Expenditure

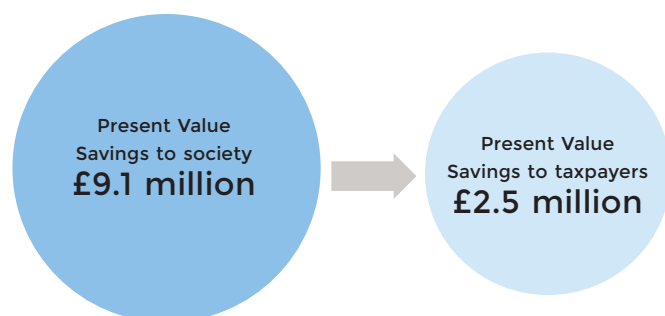
MACC is an important employer in Cheshire & Warrington, providing jobs for a wide range of staff across a number of occupations. In 2012-13, the College

TABLE 6. Present value of benefits and costs, taxpayer perspective (£ thousands)

A. Present value of taxpayer benefits	£47,699
B. Present value of taxpayer costs	£7,843
Net present value (A - B)	£39,856
Benefit/cost ratio (A / B)	6.1
Rate of return	20.6%

Source: EMSI.

FIGURE 3. Present value savings to society and associated savings to taxpayers



employed full-time and part-time staff equivalent to 212 full-time employees. Of these, approximately 74% were Cheshire & Warrington residents. Total staff costs at MACC in 2012-13 amounted to £6.5 million, which became part of Cheshire & Warrington's overall income. Staff expenditure on groceries, eating out, clothing, and other household costs also helped support local shops and businesses.

In addition to its staff, MACC is itself a large-scale buyer of goods and services. In 2012-13, the College spent £3.7 million to support its operations. Much of this expenditure benefited local suppliers in Cheshire & Warrington, creating a knock-on effect that generated additional employment and income throughout the regional economy.

The impact of MACC's payroll and purchases is subdivided into the following two main effects: the direct effect and the indirect effect. The direct effect comprises the College's payroll and employee benefits, less monies paid to individuals working outside the region. The indirect effect refers to the additional income created in the economy as MACC employees and suppliers spend money in the region to purchase even more supplies and services.

To calculate the indirect effect, we remove any expenditures that occur outside of Cheshire & Warrington and map the remainder to the 19 top-level industry sectors of the IO model. We then run the data through the model's knock-on matrix to estimate how the spending of the College and staff affects the output of other industries in the area. Finally, we convert the sales figures to income by means of value added-to-sales ratios, also provided by the IO model. Table 7 shows the results, a total of £8.2 million in gross impacts attributable to the direct effect of staff costs plus the indirect effect that occurs as the College and its staff spend money in the region.

One adjustment must be made to the gross impact before deriving the net impact of staff and College expenditure. MACC received an estimated 15.4% of funding from local sources in Cheshire & Warrington, whether from local residents (in the form of tuition fees) or from other private and public sources located in the region. Given this phenomenon, a portion of the income that the College creates in Cheshire & Warrington's economy is offset by the income that it withdraws from the economy. As such, not all of the impacts generated by MACC and its staff can be considered new monies brought to the region.

To determine the 'net' impact of MACC payroll and purchases, we take the estimated portion of funding that originated from local sources and convert it to spending. We then bridge the spending figures to the individual

TABLE 7. Impact of staff and College expenditure (£ thousands)

	TOTAL
Total income in the region	£26,583,838
Direct effect of staff costs	£4,812
Indirect effect	£3,430
Gross total	£8,242
Alternative use of funds adjustment	-£497
Net total	£7,745

Source: EMSI.

sectors of the IO model, calculate the knock-on effect, and convert the amounts to income. The result, equal to £497.2 thousand, allows us to see what income would have been created in Cheshire & Warrington anyway, even if MACC did not exist.

Subtracting the £497.2 thousand in alternative uses of funds from the £8.2 million in gross impacts yields a net impact of £7.7 million in added income in the regional economy. This value appears in the bottom row of Table 7. Assuming that MACC employs approximately the same number of people and spends approximately the same amount each year, this value may be considered an annual figure.

Impact of Learner Expenditure

Learners who relocate to Cheshire & Warrington to attend MACC spend money at local shops to buy books and supplies, purchase groceries, rent accommodation, pay for transport, attend sporting events, and so on. The expenditures of MACC's non-local learners support local suppliers and create knock-on effects, thereby generating income and a need for further jobs.

In order to calculate the knock-on effects of out-of-region learners, we begin by estimating their gross expenditure in 2012-13, a total of £151.2 thousand. Note that we exclude the expenses of in-commuters since they spend little in the region compared to those who live in Cheshire & Warrington. We then calculate the direct effect by mapping the £151.2 thousand in sales to the industry sectors in the IO model, adjusting them to account for leakage, and converting them to income by applying value added-to-sales ratios.

The indirect effect comprises the additional income created as the businesses that benefit from MACC's non-local learners also spend money in Cheshire & Warrington. We derive this effect by running the same £151.2 thousand in sales (net of leakage) through the knock-on matrix and applying value added-to-sales ratios from the IO model to convert the results to income.

Summing together the direct and indirect effect, we estimate that the spending of MACC's out-of-region learners annually adds approximately £96.9 thousand

in income to Cheshire & Warrington's economy. Since we are capturing the impacts of only those learners who relocate to the region (thereby injecting new monies into Cheshire & Warrington's economy), we do not have to adjust for the alternative use of funds as we did for the staff and College expenditure in the previous section. All of the results leading to this impact are presented in Table 8.

Impact of Added Workforce Skills

MACC's strong focus on workforce development manifests itself at all levels of the College's provision. In addition to delivering specific training and consultancy solutions to businesses, the College maintains close links with local employers in order to target the type of employee training that best meets their growth strategies. Further, MACC's vocational learning programmes and apprenticeships allow employers and the College to work together to develop industry-specific training schemes that benefit both the learners and employers. All of these services provide valuable resources to businesses and help develop the skills of the existing Cheshire & Warrington labour force.

Employee training and development is just one way that employers benefit from the presence of MACC. By aligning its provision with key employment sectors in the region, MACC helps produce the skilled workers that are needed to support Cheshire & Warrington labour market. Table 9 presents the percentage breakdown of MACC instructional activity by top-level subject sector categories, based on the College's GLH production. Arts, Media and Publishing comprises the highest percentage of activity (15%), followed by Engineering and Manufacturing Technologies (15%) and Health, Public Services and Care (13%).

Many MACC learners stay in Cheshire & Warrington and are more productive because of the quality education they invested in at the College. Over time, the skills of former MACC learners accumulate, steadily increasing the training level and experience of Cheshire & Warrington's workforce. As the skills embodied by former learners stockpile, a chain reaction occurs in which higher learner incomes generate additional rounds of consumer spending, while new skills and training translate to increased business output and higher property income, causing still more consumer purchases and regional knock-on effects. The sum of all these direct and indirect effects comprises the total impact of the learners' added skills in Cheshire & Warrington's economy.

Assigning a monetary value to the added skills acquired by learners that are still active in Cheshire & Warrington's workforce requires data on the historical

TABLE 8. Impact of expenditure of non-local learners (£ thousands)

	TOTAL
Total income in the region	£26,583,838
Direct effect of learner expenditure	£73
Indirect effect	£23
Total	£97

Source: EMSI.

TABLE 9. MACC breakdown of instructional activity by subject sector

SECTOR SUBJECT AREA	% OF TOTAL
Arts, Media and Publishing	15%
Engineering and Manufacturing Technologies	15%
Health, Public Services and Care	13%
Business, Administration and Law	12%
Retail and Commercial Enterprise	11%
Information and Communication Technology	8%
Leisure, Travel and Tourism	7%
Preparation for Life and Work	6%
Education and Training	4%
Science and Mathematics	4%
Construction, Planning and the Built Environment	3%
History, Philosophy and Theology	2%
Languages, Literature and Culture	2%
Total	100%

Source: Data supplied by MACC.

TABLE 10. Impact of added workforce skills (£ thousands)

	TOTAL
Total income in the region	£26,583,838
Direct effect of added workforce skills	£72,117
Indirect effect	£41,040
Total	£113,157

Source: EMSI.

enrolments and corresponding achievement levels of MACC learners over the past 15-year-period. Guided Learner Hours (GLH) are used to determine the achievement levels of MACC learners, and serve as a proxy for the level of skills learners contribute to the regional workforce. Using these data in conjunction with the wage differentials from Table 2, we can determine the total amount of higher earnings associated with the educational achievements of past and present learners. We then convert this to value added using the ratios supplied by the IO model. The result, equal to £72.1 million, appears in Table 10 and represents the accumulated direct effect of the added skills acquired by learners whom MACC has served over the last 15

years.

To calculate the indirect effect, the model allocates increases in regional income to specific industrial sectors and augments these to account for both demand-side and supply-side knock-on effects. Demand-side effects refer to the increased demand for consumer goods and services as the higher incomes of skilled workers and their employers are spent in the local economy. Supply-side effects occur through a process of 'agglomeration,' whereby growth becomes to some degree self-perpetuating. The presence of one industry, for example, attracts other industries that use the first industry's outputs as inputs, which produces subsequent rounds of industry growth, and so on. Both demand-side and supply-side effects are calculated using the knock-on matrix and value-added to sales ratios provided by the regional IO model.

Altogether, the accumulated contribution of former MACC learners who are currently employed in the regional workforce amounts to £113.2 million, the sum of £72.1 million in direct effects and £41 million in indirect effects. These results appear in Table 10.

Total Impact on Regional Economy

Table 11 displays the grand total of MACC's impact on Cheshire & Warrington in 2012-13. Altogether, the results of this study show that the economic contribution of MACC to the local business community in Cheshire & Warrington is approximately £121 million each year. This is equal to around 0.5% of Cheshire & Warrington's total economy and represents roughly 4,839 average wage jobs.

These results demonstrate several important points. First, MACC promotes regional economic growth through its own operations spending, through the spending of its non-local learners, and through the increase in productivity as former MACC learners remain active in the regional workforce. Second, the impact of added skills in the regional workforce is by far the largest and most important impact of MACC, stemming from higher incomes of learners and their employers. And third, regional income in Cheshire & Warrington would be substantially lower without the educational activities of MACC.

TABLE 11. Total impact of MACC (£ thousands)

	TOTAL	% OF TOTAL
Total income in the region	£26,583,838	
Impact of staff and College expenditure	£7,745	<.1%
Impact of expenditure of non-local learners	£97	<.1%
Impact of added workforce skills	£113,157	0.4%
Total impact on local business community	£120,998	0.5%

Source: EMSI.

CONCLUSION

The results of this study demonstrate that MACC creates value from multiple perspectives. The College addresses the needs of employers by providing them with staff development opportunities and supplying the workforce with qualified, trained workers. Local businesses benefit from the patronage of MACC and the expenditure of College staff and learners. The College also indirectly benefits taxpayers by generating increased tax receipts and reducing the demand for public sector services.

The most important value that MACC creates, however, is the impact it has on its learners. The experiences that learners receive at the College have the power to shape the rest of their lives and put them on the path to becoming happy and productive members of their communities. This, after all, is the College's mission, and for as long as it continues to deliver excellence to learners, all other stakeholder groups will see the positive impacts of learning in their lives too.

REGIONAL ECONOMIC IMPACT ANALYSIS

BENEFITS TO LOCAL BUSINESS COMMUNITY

£7,745	Added income created by staff and College expenditure (£ thousands)
£97	Added income created by expenditure of non-local learners (£ thousands)
£113,157	Added income created by added skills (£ thousands)
£120,998	Total income created in the regional economy (£ thousands)
0.5%	% of total output of the regional economy
4,839	Total output as number of average wage jobs

INVESTMENT ANALYSIS

BENEFITS TO LEARNERS

£90,204	Net present value of higher future earnings over working life (£ thousands)
15.2%	Return on investment
4.4	Benefit/cost ratio

BENEFITS TO SOCIETY

£228,731	Net present value of added income and social externalities (£ thousands)
18.1%	Return on investment
5.2	Benefit/cost ratio

BENEFITS TO TAXPAYERS

£39,856	Net present value of added tax receipts and avoided costs (£ thousands)
20.6%	Return on investment
6.1	Benefit/cost ratio

ABOUT EMSI Economic Modelling Specialists International (EMSI) provides employment data and economic analysis via web tools and custom reports. The company has also produced more than 1,300 comprehensive impact analyses for colleges and universities in the UK, US, Canada, and Australia. Founded in 2000, EMSI is located in Moscow, Idaho with branch offices in the UK, and it serves education, economic, and workforce development institutions and organisations. Visit our website at www.economicmodelling.co.uk for more information.