



DEMONSTRATING THE VALUE OF

Leeds City College

EXECUTIVE SUMMARY

August 2013

ANALYSIS OF THE SOCIAL & ECONOMIC IMPACT OF LEARNING

emsi

INTRODUCTION

Leeds City College (LCC) 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 LCC 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 the Leeds City Region and defined as Leeds and Keighley in the Yorkshire and the Humber. This provision supplies employers with the skilled workers they need to make their businesses more productive. The expenditure of LCC, along with the spending of its staff and its learners, further supports the local economy through the output and employment generated by local suppliers. Lastly, and just as importantly, the economic impact of LCC

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 LCC 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 LCC will perform for a given investor over time. The investors in this case are learners, society, and taxpayers, all of whom pay a certain amount in costs

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

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to support the learning activities at LCC. 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 LCC on the local business community in the Leeds City Region. 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 the Leeds City Region's economy as a result of the increased consumer spending and added skills generated by LCC 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 the Leeds City Region's workforce.

Data and assumptions used in the study are based on several sources, including the 2011-12 Individual Learner Records (ILR) reports from LCC, 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 LCC 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 **£15.8 million** to cover the cost of tuition fees and books and supplies at LCC in 2011-12. All learners also forwent **£233.4 million** in earnings that they would have generated had they been working instead of learning.
- In return for the monies that learners invest in LCC, they will receive a present value of **£615.6 million** in increased earnings over their working lives.
- Every £1 that learners pay for their education at LCC yields **£2.50** in higher future wages. This translates to a **9.8%** annual return on their investment.

BENEFITS TO SOCIETY

- Society as a whole invested **£518.8 million** in LCC 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 **£1.7 billion** 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 **£3.30** in benefits in return for every £1 invested in LCC. The average annual return on investment is **12.5%**.

BENEFITS TO TAXPAYERS

- Taxpayers in the UK paid **£78.3 million** to support the operations of LCC in 2011-12.
- The net present value of the added tax revenue stemming from the learners' higher lifetime incomes and the increased output of businesses amounts to **£274.8 million** in benefits to taxpayers. Avoided costs to the public sector adds another **£15.9 million** in benefits due to a reduced demand for government-funded social services in the UK.
- Taxpayers see an average annual return of **13.8%** on their investment in LCC. The corresponding benefit-cost ratio is **£3.70** in benefits returned for every £1 in costs.

REGIONAL ECONOMIC IMPACT ANALYSIS

IMPACT OF STAFF AND COLLEGE EXPENDITURE

- LCC employed **1,933** full-time equivalent (FTE) staff in 2011-12. Staff costs amounted to **£57.7 million**, much of which was spent in the Leeds City Region to purchase groceries, clothing, and other household goods and services.
- The College is itself a buyer of goods and services and spent **£39.3 million** to support its operations in 2011-12. This expenditure further benefited many local suppliers in the Leeds City Region.
- The net impact of staff and College expenditure in the Leeds City Region comes to approximately **£77.8 million** in added income in the regional economy each year.

IMPACT OF LEARNER EXPENDITURE

- LCC learners who relocate to the Leeds City Region 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 LCC's non-local learners annually adds approximately **£635.5 thousand** in income to the Leeds City Region's economy.

IMPACT OF ADDED WORKFORCE SKILLS

- Many of LCC's learners stay in the Leeds City Region. 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 LCC learners who are currently employed in the regional workforce amounts to **£624.2 million** in added income in the Leeds City Region's economy each year.

TOTAL IMPACT ON LOCAL BUSINESS COMMUNITY

- Altogether, the economic contribution of LCC to the local business community in the Leeds City Region is **£702.6 million** each year.
- Total added income created by the College and its learners is equal to **2.2%** of the total economic output of the Leeds City Region and represents roughly **27,521** average wage jobs.

METHODOLOGY & RESULTS

LCC 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, LCC 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.

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 LCC 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 2011-12, LCC served 38,489 unique learners across various qualifications and levels. Table 1 shows the breakdown of enrolments at LCC 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 34% of all enrolments, followed

by Level 2, which comprised 33% of all enrolments.

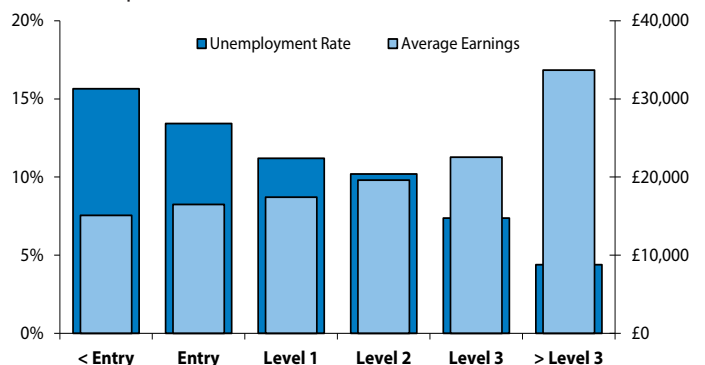
In order to go to the College and depending on their level of funding, learners at LCC pay money to cover the cost of tuition fees and purchase books and supplies. All learners also forgo earnings that they would have generated had they been working instead of learning. Together these two cost factors comprise the learners' total investment in their education at LCC, equal to £249.3 million in 2011-12 (the sum of £15.8 million in tuition fees, books, and supplies and £233.4 million in forgone earnings). This translates to an average cost of £6,476 per learner, the bulk of which comprises the opportunity cost of spending time learning rather than working.

TABLE 1. Breakdown of enrolments at LCC, 2011-12

EDUCATION LEVEL	%
Entry Level	16%
Level 1	13%
Level 2	33%
Level 3	34%
> Level 3	4%
Total	100%

Source: Data supplied by LCC.

FIGURE 1. Unemployment rate and average annual earnings by education level received by individuals in the Leeds City Region 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 LCC will see an increase in earnings of £2,953 each year compared to someone with Level 2 qualifications. This amounts to a present value of approximately £100,390 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 LCC in 2011-12. 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 LCC.

TABLE 2. Average lifetime earnings by education level received in the Leeds City Region, undiscounted

EDUCATION LEVEL	EARNINGS	DIFFERENCE
< Entry level	£513,618	n/a
Entry	£560,358	£46,739
Level 1	£592,527	£32,169
Level 2	£666,464	£73,938
Level 3	£766,854	£100,390
> Level 3	£1,144,805	£377,950

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

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

A. Present value of future earnings stream	£615,567
B. Present value of learner costs	£249,264
Net present value (A – B)	£366,303
Benefit/cost ratio (A / B)	2.5
Rate of return	9.8%

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 £615.6 million. Costs are provided in the second row of Table 3, equal to £249.3 million, which includes tuition fees, books and supplies, and the opportunity cost of time. By dividing the £615.6 million in benefits by the £249.3 million in costs, we derive a benefit-cost ratio of 2.5. This means that, for every £1 learners invest at LCC in the form of tuition fees and forgone earnings, they will receive a cumulative £2.50 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 LCC learners earning an average annual rate of return of 9.8% 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

LCC 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 LCC 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 LCC. 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.

LCC'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 LCC learners. As shown, added income amounts to a present value of £1.7 billion, due to the increased lifetime earnings of learners and associated increases in business output. Social savings amount to £59 million, the sum of health, crime, and unemployment savings in the UK (see also Figure 2). Altogether, the total social value of LCC is £1.7 billion. Note that the figures in Table 4 have been adjusted to account for counterfactual outcomes where LCC does not exist.

In order to calculate society's return on investment, we must first determine what it cost society to support LCC during the reporting year. Costs to society break down into two main categories, direct outlays and opportunity costs. Direct outlays simply refer to LCC's operating and non-operating revenues, equal to £93.3 million in 2011-12. 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 £518.8 million in costs to society during the reporting year.

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

	TOTAL
ADDED INCOME	
Increased income in the UK	£1,665,034
SOCIAL SAVINGS	
Health savings*	£16,211
Crime savings	£38,482
Unemployment savings†	£4,351
Total	£1,724,079

* 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)

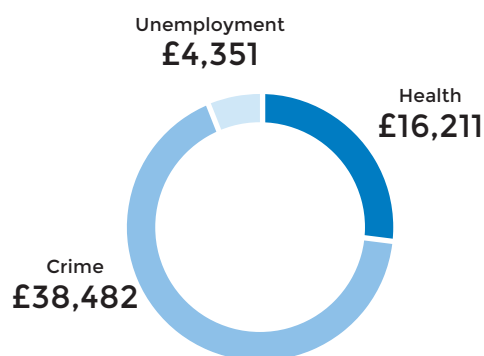


TABLE 5. Present value of benefits and costs, social perspective (£ thousands)

A. Present value of social benefits	£1,724,079
B. Present value of social costs	£518,840
Net present value (A - B)	£1,205,239
Benefit/cost ratio (A / B)	3.3
Rate of return	12.5%

Source: EMSI.

Table 5 shows the investment analysis results. In return for the £518.8 million that society invests in LCC, it receives a net gain (in present value terms) of £1.2 billion. The associated benefit-cost ratio is £3.30 for every £1 spent, and the average return on investment is 12.5% 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 LCC. Learners earn more, which means they make higher income tax payments 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 £274.8 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 £59 million in health, crime, and unemployment savings to society translates to £15.9 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.

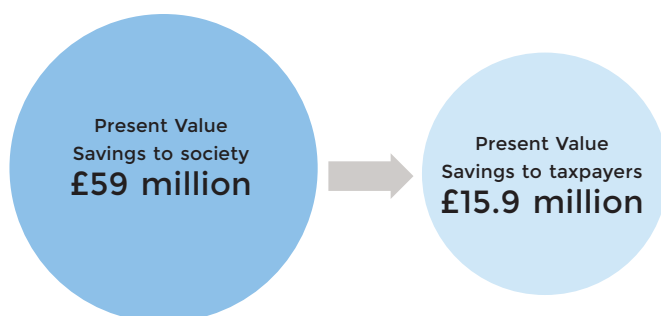
Summing the present value of the added tax revenues and savings to taxpayers yields £290.7 million (net of the same counterfactual adjustment applied to the social perspective). This value appears in the top row of Table 6. Also shown in the table are the costs to taxpayers, equal to £78.3 million. These represent the total funding received by LCC from taxpayers in 2011-12.

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

A. Present value of taxpayer benefits	£290,742
B. Present value of taxpayer costs	£78,314
Net present value (A - B)	£212,428
Benefit/cost ratio (A / B)	3.7
Rate of return	13.8%

Source: EMSI.

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



By comparing taxpayer costs to the £290.7 million in benefits, we derive a benefit/cost ratio of 3.7. This means that for every £1 of public money invested in LCC, taxpayers receive a cumulative value of £3.70 over the course of the learners' working lives. This translates to a 13.8% annual return on investment to taxpayers for their support of LCC, again a solid investment that compares favourably with other long-term investments in both the private and public sectors.

REGIONAL ECONOMIC IMPACT ANALYSIS

LCC promotes economic growth in the Leeds City Region 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, LCC 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 LCC 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 the Leeds City Region'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 the Leeds City Region to attend the College, and 3) impact of the added skills of former LCC learners who are still employed in the Leeds City Region's workforce.

Impact of Staff and College Expenditure

LCC is an important employer in the Leeds City Region, providing jobs for a wide range of staff across a number of occupations. In 2011-12, the College employed full-time and part-time staff equivalent to 1,933 full-time employees. Of these, approximately 82% were Leeds City Region residents. Total staff costs at LCC in 2011-12

amounted to £57.7 million, which became part of the Leeds City Region’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, LCC is itself a large-scale buyer of goods and services. In 2011-12, the College spent £39.3 million to support its operations. Much of this expenditure benefited local suppliers in the Leeds City Region, creating a knock-on effect that generated additional employment and income throughout the regional economy.

The impact of LCC’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 LCC 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 the Leeds City Region 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 £81.3 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. LCC received an estimated 11.4% of funding from local sources in the Leeds City Region, 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 the Leeds City Region’s economy is offset by the income that it withdraws from the economy. As such, not all of the impacts generated by LCC and its staff can be considered new monies brought to the region.

To determine the ‘net’ impact of LCC 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 sectors of the IO model, calculate the knock-on effect, and convert the amounts to income. The result, equal to £3.5 million, allows us to see what income would

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

	TOTAL
Total income in the region	£31,437,236
Direct effect of staff costs	£47,292
Indirect effect	£33,984
Gross total	£81,276
Alternative use of funds adjustment	-£3,498
Net total	£77,778

Source: EMSI.

have been created in the Leeds City Region anyway, even if LCC did not exist.

Subtracting the £3.5 million in alternative uses of funds from the £81.3 million in gross impacts yields a net impact of £77.8 million in added income in the regional economy. This value appears in the bottom row of Table 7. Assuming that LCC 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 the Leeds City Region to attend LCC 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 LCC’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 2011-12, a total of £980.6 thousand. Note that we exclude the expenses of in-commuters since they spend little in the region compared to those who live in the Leeds City Region. We then calculate the direct effect by mapping the £980.6 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 LCC’s non-local learners also spend money in the Leeds City Region. We derive this effect by running the same £980.6 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 LCC’s out-of-region learners annually adds approximately £635.5 thousand in income to the Leeds City Region’s economy. Since we are capturing the impacts of only those learners who relocate to the region (thereby injecting new monies

into the Leeds City Region'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

LCC'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, LCC'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 Leeds City Region labour force.

Employee training and development is just one way that employers benefit from the presence of LCC. By aligning its provision with key employment sectors in the region, LCC helps produce the skilled workers that are needed to support the Leeds City Region labour market. Table 9 presents the percentage breakdown of LCC instructional activity by top-level subject sector categories, based on the College's GLH production. Preparation for Life and Work comprises the highest percentage of activity (23%), followed by Health, Public Services and Care (15%) and Arts, Media and Publishing (13%).

Many LCC learners stay in the Leeds City Region and are more productive because of the quality education they invested in at the College. Over time, the skills of former LCC learners accumulate, steadily increasing the training level and experience of the Leeds City Region'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 the Leeds City Region's economy.

Assigning a monetary value to the added skills acquired by learners that are still active in the Leeds City Region's workforce requires data on the historical enrolments and corresponding achievement levels of LCC learners over the past 15-year-period. Guided Learner Hours (GLH) are used to determine the achieve-

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

	TOTAL
Total income in the region	£31,437,236
Direct effect of learner expenditure	£476
Indirect effect	£159
Total	£635

Source: EMSI.

TABLE 9. LCC breakdown of instructional activity by subject sector

SECTOR SUBJECT AREA	% OF TOTAL
Preparation for Life and Work	23%
Health, Public Services and Care	15%
Arts, Media and Publishing	13%
Retail and Commercial Enterprise	10%
Engineering and Manufacturing Technologies	7%
Information and Communication Technology	6%
Business, Administration and Law	6%
Leisure, Travel and Tourism	6%
Science and Mathematics	4%
Languages, Literature and Culture	3%
Construction, Planning and the Built Environment	2%
Education and Training	1%
Agriculture, Horticulture and Animal Care	1%
Social Sciences	1%
History, Philosophy and Theology	1%
Total	100%

Source: Data supplied by LCC.

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

	TOTAL
Total income in the region	£31,437,236
Direct effect of added workforce skills	£389,192
Indirect effect	£234,987
Total	£624,179

Source: EMSI.

ment levels of LCC 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 £389.2 million, appears in Table 10 and represents the accumulated direct effect of the added skills acquired by learners whom LCC 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 LCC learners who are currently employed in the regional workforce amounts to £624.2 million, the sum of £389.2 million in direct effects and £235 million in indirect effects. These results appear in Table 10.

Total Impact on Regional Economy

Table 11 displays the grand total of LCC's impact on the Leeds City Region in 2011-12. Altogether, the results of this study show that the economic contribution of LCC to the local business community in the Leeds City Region is approximately £702.6 million each year. This is equal to around 2.2% of the Leeds City Region's total economy and represents roughly 27,521 average wage jobs.

These results demonstrate several important points. First, LCC 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 LCC 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 LCC, stemming from higher incomes of learners and their employers. And third, regional income in the Leeds City Region would be substantially lower without the educational activities of LCC.

TABLE 11. Total impact of LCC (£ thousands)

	TOTAL	% OF TOTAL
Total income in the region	£31,437,236	
Impact of staff and College expenditure	£77,778	0.2%
Impact of expenditure of non-local learners	£635	<.1%
Impact of added workforce skills	£624,179	2.0%
Total impact on local business community	£702,592	2.2%

Source: EMSI.

CONCLUSION

The results of this study demonstrate that LCC 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 LCC 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 LCC 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

£77,778	Added income created by staff and College expenditure (£ thousands)
£635	Added income created by expenditure of non-local learners (£ thousands)
£624,179	Added income created by added skills (£ thousands)
£702,592	Total income created in the regional economy (£ thousands)
2.2%	% of total output of the regional economy
27,521	Total output as number of average wage jobs

INVESTMENT ANALYSIS

BENEFITS TO LEARNERS

£366,303	Net present value of higher future earnings over working life (£ thousands)
9.8%	Return on investment
2.5	Benefit/cost ratio

BENEFITS TO SOCIETY

£1,205,239	Net present value of added income and social externalities (£ thousands)
12.5%	Return on investment
3.3	Benefit/cost ratio

BENEFITS TO TAXPAYERS

£212,428	Net present value of added tax receipts and avoided costs (£ thousands)
13.8%	Return on investment
3.7	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.