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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table A1**  **List of skills in the Burning Glass Technologies job vacancies dataset used to identify AI vacancies.**   |  |  |  |  | | --- | --- | --- | --- | | **N** | **Skill** | **N** | **Skill** | | **1** | **AI ChatBot** | **37** | **Mlpy** | | **2** | **AI KIBIT** | **38** | **Modular Audio Recognition Framework (MARF)** | | **3** | **ANTLR** | **39** | **MoSes** | | **4** | **Apertium** | **40** | **MXNet** | | **5** | **Artiﬁcial Intelligence** | **41** | **Natural Language Processing** | | **6** | **Automatic Speech Recognition (ASR)** | **42** | **Natural Language Toolkit (NLTK)** | | **7** | **Caffe Deep Learning Framework** | **43** | **ND4J (software)** | | **8** | **Chatbot** | **44** | **Nearest Neighbor Algorithm** | | **9** | **Computational Linguistics** | **45** | **Neural Networks** | | **10** | **Computer Vision** | **46** | **Object Recognition** | | **11** | **Decision Trees** | **47** | **Object Tracking** | | **12** | **Deep Learning** | **48** | **OpenCV** | | **13** | **Deeplearning4j** | **49** | **OpenNLP** | | **14** | **Distinguo** | **50** | **Pattern Recognition** | | **15** | **Google Cloud Machine Learning Platform** | **51** | **Pybrain** | | **16** | **Gradient boosting** | **52** | **Random Forests** | | **17** | **H2O (software)** | **53** | **Recommender Systems** | | **18** | **IBM Watson** | **54** | **Semantic Driven Subtractive Clustering Method (SDSCM)** | | **19** | **Image Processing** | **55** | **Semi-Supervised Learning** | | **20** | **Image Recognition** | **56** | **Sentiment Analysis / Opinion Mining** | | **21** | **IPSoft Amelia** | **57** | **Sentiment Classiﬁcation** | | **22** | **Ithink** | **58** | **Speech Recognition** | | **23** | **Keras** | **59** | **Supervised Learning (Machine Learning)** | | **24** | **Latent Dirichlet Allocation** | **60** | **Support Vector Machines (SVM)** | | **25** | **Latent Semantic Analysis** | **61** | **TensorFlow** | | **26** | **Lexalytics** | **62** | **Text Mining** | | **27** | **Lexical Acquisition** | **63** | **Text to Speech (TTS)** | | **28** | **Lexical Semantics** | **64** | **Tokenization** | | **29** | **Libsvm** | **65** | **Torch (Machine Learning)** | | **30** | **Machine Learning** | **66** | **Unsupervised Learning** | | **31** | **Machine Translation (MT)** | **67** | **Virtual Agents** | | **32** | **Machine Vision** | **68** | **Vowpal** | | **33** | **Madlib** | **69** | **Wabbit** | | **34** | **Mahout** | **70** | **Word2Vec** | | **35** | **Microsoft Cognitive Toolkit** | **71** | **Xgboost** | | **36** | **MLPACK (C++ library)** |  |  |   **Table 1:** Variables Definition | |  |
| Name | Definition | Data source |
| AI Investment | Proportion of AI skills (AI Share). Calculated as a share of the firm’s employees who are AI-skilled/ total number of employees | Based on the Author’s calculations |
| Firm growth | Measured as a one-year growth rate of sales (SALE) at time t-1. This constructed as (SALEt−1 − SALEt−2)/SALEt−2 | Compustat |
| Labour Market Conditions (LC) | (Labour share, Labour cost and Labour productivity) |  |
| Labour share | Total Staff Expense / (Operating Income Before Depreciation + Inventories –Finished Goods \* . We set ∆INVFGit to zero when either INVFGit or INVFGi,t−1 are missing.  LS = XLRit/OIBDPit +∆INVFGit +XLRit | Compustat |
| Labour cost | Total cost of employee XLR/ Number of Employees (EMP) |  |
|  |  | Compustat |
| Labour Productivity |  |  |
|  | Total sales (SALE) divided by the number of employees (EMP) in a  Company (see Breit et al., 2019) | Compustat |
| Talent management (Talent) | An index that measures how easy is it for a country retain talented people. [1 = the best and brightest leave to pursue opportunities in other countries; 7 = the best and brightest stay and pursue opportunities in the country] | Global Competitive index |
| Tobin’s Q | The market value of equity (PRCC times CSHO) plus total assets (AT) minus the book value of equity (ceq + txdb), divided by total assets (AT) | Compustat |
| ROA | Operating income before depreciation (OIBDP) divided by total assets (AT). | Compustat |
| Book-to-market (MBV): | Book value of equity (CEQ) divided by market value of equity (PRCC times CSHO) | Compustat |
| Firm Size: | Natural logarithm of book assets (AT) | Compustat |
| Effective Tax Rate: | The ratio of tax expense (TXT) to pre-tax income (PI) (Lisowsky et al., 2013) | Compustat |
| 5-year Repatriation tax cost (REPTAX): | Income (PIFO) times 35%) and foreign income taxes paid (TXFO) over the previous five years. | Compustat |
| Net tax loss carry forward (NOL) : | NOL as the balance of tax loss carryforwards scaled by total assets (TLCF/AT), where NOL is set equal to zero when tax loss carryforwards is missing |  |
|  |  |  |
| Financial Crisis | A dummy variable is a proxy for crisis 1 for the crisis periods (1991, 2001, 2007, 2008, and 2009) and 0 for any other years. |  |
| Capital expenditures (CAPEX) | Capital expenditures (CAPX), scaled by total assets at the beginning of the period (AT). | Compustat |
| Net Working Capital | The ratio of working capital (ACT−LCT) minus cash and marketable securities (CHE) to total assets (AT) | Compustat |
| fixed assets growth (FAG) | The one-year growth rate of fixed assets (PPENT) at time t−1: (PPENTt−1 − PPENTt−2 )/PPENTt−2. | Compustat |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Table 2:** Descriptive statistics | |  |  |  |  |
| This table reports the descriptive statistics of the variables under consideration. All variable definitions are contained in Table 1. | | | | | |
|  | Mean | Std. Dev. | perc 10 | Median | perc 90 |
| Firm growth (%) | 32 | 85 | 00 | 11 | 39 |
| AI Share (ratio) | 0.003 | 0.041 | 0 | 0 | 1 |
| Labour share (%) | 60 | 69 | 59 | 59 | 61 |
| Labour cost (ratio) | 1.67 | 1.14 | 0.00 | 1.88 | 3.17 |
| Labour productivity(ratio) | 1074.29 | 15656.7 | 0.00 | 16.11 | 322729.66 |
| Market to Book Value (ratio) | 5.05 | 2.22 | 2.25 | 3.24 | 7.96 |
| REPOTAX | -0.005 | 0.028 | 0.00 | 0.00 | 0.12 |
| NOL | 11.9 | 441 | 0.00 | 0.079 | 3.42 |
| Capital Expenditure (ratio) | 0.050 | 0.084 | 0.00 | 0.02 | 0.126 |
| Net working Capital (ratio) | 3.78 | 1.89 | 1.35 | 3.92 | 332.27 |
| FirmSize (Million $) | 7.67 | 1.79 | 5.52 | 7.53 | 10.12 |
| Fixed asset growth(%) | 0.220 | 0.686 | 0.00 | 0.00 | 1.024 |
| Altman Score (ratio) | 5.01 | 2.04 | 2.4209 | 5.114 | 7.750 |
| Effective Tax Rate (%) | 0.06 | 18.07 | 0.000 | 0.10 | 0.404 |

Table 3: Correlation Matrix:

This table reports the correlation matrix of the variables under consideration. All variable definitions are contained in Table 1. \* indicates statistical significance at the 5%

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 1. Firm growth | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2. AI investment | -0.043\* | 1 |  |  |  |  |  |  |  |  |  |  |  |  |
| 3. Labourshare | 0.0107 | -0.028\* | 1 |  |  |  |  |  |  |  |  |  |  |  |
| 4. Labour cost | -0.002 | 0.0662\* | -0.1058\* | 1 |  |  |  |  |  |  |  |  |  |  |
| 5. Labour Productivity | -0.0008 | -0.0077 | 0.2996\* | -0.725\* | 1 |  |  |  |  |  |  |  |  |  |
| 6. NOL | -0.017\* | 0.202\* | -0.0095 | 0.0113 | 0.0118 | 1 |  |  |  |  |  |  |  |  |
| 7. REPOTAX | 0.0117 | -0.260\* | 0.009 | -0.0119 | 0.0011 | 0.2587\* | 1 |  |  |  |  |  |  |  |
| 8. Market to Book Value | -0.068\* | -0.097\* | 0.0156 | -0.0001 | 0.0108 | 0.005 | 0.1317\* | 1 |  |  |  |  |  |  |
| 9. Capital Expenditure | 0.1113\* | 0.0985\* | 0.0054 | -0.0054 | 0.0015 | 0.0146\* | -0.0017 | -0.059\* | 1 |  |  |  |  |  |
| 10. Net working capital | -0.027\* | -0.445\* | -0.0071 | -0.0019 | 0.0039 | 0.2834\* | 0.2411\* | 0.5034\* | -0.137\* | 1 |  |  |  |  |
| 11. Firm Size (Million $) | -0.096\* | -0.318\* | 0.0215\* | -0.0098 | 0.0093 | 0.0590\* | 0.2814\* | 0.4651\* | 0.0342\* | 0.6403\* | 1 |  |  |  |
| 12. Fixed asset growth (%) | 0.503\* | -0.079\* | 0.0202\* | -0.0092 | 0.012 | 0.0227\* | 0.0445\* | -0.0482 | 0.2527\* | 0.0046 | 0.0006 | 1 |  |  |
| 13. Altman Score | -0.171\* | -0.316\* | 0.0042 | 0.0019 | 0.001 | 0.2232\* | 0.2300\* | 0.5704\* | -0.0339\* | 0.6388\* | 0.8366\* | -0.1271\* | 1 |  |
| 14. Effective Tax Rate | -0.059\* | -0.145\* | -0.0074 | -0.0113\* | -0.001 | -0.013\* | 0.1757\* | 0.1430\* | -0.038\* | 0.2447\* | 0.2714\* | -0.024\* | 0.3381\* | 1 |

|  |
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| **Table 4:** Baseline regression: AI investment and firms’ growth |
| This table presents the results of the relationship between AI investment and Firms' growth. Column (1) provides the results of the relationship between AI investment and firms' growth. Column (2) reports the effect of labour share on firm grwoth. Column (3) presents the relationship between labour cost on firm growth. Column (4) presents the relationship between labour productivity on firm growth. Detailed definition of all the variables is in Table 1. Time and industry dummies are included in the estimations, but not reported. T statistic in brackets. Degrees of freedom in brackets. \*\*\*, \*\*, and \* indicate statistical significance at 1%, 5% and 10% levels, respectively. |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Firm Growth | Labour Share | labour Cost | labour Productivity |
| Firm Growth | 0.0354\*\* | 0.00204 | 0.0440\*\*\* | -0.00421 |
|  | (2.31) | (0.10) | (9.92) | (-0.22) |
| AI investment | 0.00368\*\* | 0.00374\*\* | 0.000964\*\*\* | 0.00316\*\*\* |
|  | (2.15) | (2.06) | (5.13) | (2.96) |
| LC |  | -0.06023\*\*\* | -0.0206\*\*\* | 0.00922\*\*\* |
|  |  | (-4.10) | (-23.98) | (6.88) |
| MBV | 0.0312\*\*\* | 0.0357\*\*\* | 0.0156\*\*\* | 0.0246\*\*\* |
|  | (4.52) | (4.70) | (14.51) | (4.43) |
| NOL | -0.0850\*\*\* | -0.0261 | -0.00379 | -0.0137 |
|  | (-3.50) | (-0.92) | (-0.66) | (-0.68) |
| REPOTAX | 2.373\*\*\* | 2.952\*\*\* | 0.647\*\*\* | 1.863\*\*\* |
|  | (3.30) | (2.83) | (8.50) | (3.62) |
| CAPEX | -0.292 | -0.256 | -0.341 | -0.322 |
|  | (-1.21) | (-1.10) | (-7.13) | (-1.51) |
| NWC | 0.0263 | 0.0314 | 0.0166\*\*\* | 0.00546 |
|  | (1.41) | (1.37) | (6.30) | (0.41) |
| Firm Size | 0.152\*\*\* | 0.0587 | 0.158\*\*\* | 0.119\*\*\* |
|  | (4.97) | (1.46) | (26.85) | (5.93) |
| FAG | 0.0629\*\* | 0.0801\*\*\* | 0.0758\*\*\* | 0.0545\*\*\* |
|  | (2.55) | (3.82) | (18.56) | (2.60) |
| Altman Score | -1.069\*\*\* | -0.984\*\*\* | -0.987\*\*\* | -0.997\*\*\* |
|  | (-35.99) | (-25.91) | (-143.41) | (-34.01) |
| ETR | 0.000623 | 0.00868 | 0.00514\*\*\* | 0.00776\*\*\* |
|  | (0.11) | (1.09) | (5.61) | (3.95) |
| N | 486 | 486 | 486 | 486 |
| AR1 | 0.14 | 0.24 | 0.12 | 0.15 |
| AR2 | 0.001 | 0.001 | 0.001 | 0.001 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Table 5: AI investment, labour market condition and firms’ growth** This table presents the results of the relationship between AI investment, labour market condition and Firms' growth. Column (1) provides the results of the relationship between AI investment, labour market conditions (measured by labour share) and firms' growth. Column (2) presents the relationship between AI investments, labour market conditions (measured by labour cost) on firm growth. Column (3) presents the relationship between AI investments, labour market conditions (measured by Labour productivity) on firm growth. Detailed definition of all the variables is in Table 1. Time and industry dummies are included in the estimations, but not reported. T statistic in brackets. Degrees of freedom in brackets. \*\*\*, \*\*, and \* indicate statistical significance at 1%, 5% and 10% levels, respectively. | | | | |
|  | Labour Share |  | labour Cost | labour Productivity |
| Firm Growth | 0.0290 |  | -0.0294\*\*\* | 0.0268\*\*\* |
|  | (1.57) |  | (-6.24) | (6.80) |
| AI investment | -0.00348\*\* |  | -0.00166\*\*\* | -0.00122\*\* |
|  | (-2.06) |  | (-3.11) | (-2.13) |
| MBV | 0.0231\*\*\* |  | 0.0114\*\*\* | 0.00631\*\*\* |
|  | (3.32) |  | (4.19) | (3.39) |
| NOL | -0.0686\*\*\* |  | -0.0216\*\*\* | -0.0643\*\*\* |
|  | (-3.55) |  | (-4.13) | (-5.25) |
| REPOTAX | 1.358\*\* |  | 0.254 | 1.858\*\*\* |
|  | (2.38) |  | (1.56) | (10.38) |
| CAPEX | 0.00519 |  | -0.114 | -0.0971 |
|  | (0.03) |  | (-1.34) | (-1.03) |
| NWC | 0.0687\*\*\* |  | -0.0300\*\*\* | 0.0126\*\*\* |
|  | (4.18) |  | (-5.36) | (2.62) |
| Firm Size | 0.0792\*\*\* |  | 0.209\*\*\* | 0.0404\*\*\* |
|  | (3.11) |  | (15.23) | (3.41) |
| FAG | 0.0840\*\*\* |  | 0.0239\*\*\* | 0.0335\*\*\* |
|  | (4.37) |  | (4.67) | (4.40) |
| Altman Score | -1.099\*\*\* |  | -1.000\*\*\* | -1.057\*\*\* |
|  | (-32.52) |  | (-69.84) | (-75.52) |
| ETR | 0.00386 |  | -0.00785\*\*\* | -0.00556\*\* |
|  | (0.70) |  | (-4.41) | (-2.11) |
| LC X AI Investment | 0.0245\*\*\* |  | 0.00791\*\* | 0.0151\*\*\* |
|  | (3.33) |  | (2.19) | (10.50) |
| N | 486 |  | 305 | 195 |
| AR1 | 0.74 |  | 0.123 | 0.123 |
| AR2 | 0.001 |  | 0.005 | 0.002 |

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| --- | --- | --- | --- | --- | --- |
| **Table 6: Alternative measure of growth and labour market conditions**  This table reports the relationship between AI, labour market conditions using alternative measures of growth. We define growth using the employment growth instead of sales growth as the dependent variable. Column (1) provides the results of the relationship between AI investment and firms employment growth. Column (2) provides the results of the relationship between AI investment and labour market conditions (measured by labour share) and firms' growth. Column (3) presents the relationship between AI investments, labour market conditions (measured by labour cost) on firm growth. Column (4) presents the relationship between AI investments, labour market conditions (measured by Labour productivity) on firm growth. Detailed definition of all the relevant variables can be found in Table 1. Standard errors are shown in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at 1%, 5% and 10% levels, respectively. | | | | | |
|  | Employment Growth | Labour Share |  | Labour Cost | Labour Productivity |
| Firm Growth | -0.00305 | 0.0565\*\*\* |  | -0.0272\*\*\* | -0.00299\*\*\* |
|  | (-0.58) | (36.21) |  | (-12.81) | (-4.51) |
| AI investment | 0.00277\*\*\* | 0.000816 |  | 0.00354 | 0.00110 |
|  | (3.96) | (0.57) |  | (1.26) | (0.86) |
| MBV | 0.00804\*\*\* | -0.0182\*\*\* |  | 0.0373\*\*\* | -0.0110\*\*\* |
|  | (2.92) | (-6.14) |  | (5.30) | (-3.51) |
| NOL | 0.0246\*\*\* | 0.169\*\*\* |  | 0.105\*\*\* | 0.160\*\*\* |
|  | (3.33) | (8.74) |  | (3.80) | (7.53) |
| REPOTAX | -1.231\*\*\* | -4.107\*\*\* |  | 0.319 | -0.333\*\*\* |
|  | (-5.14) | (-21.33) |  | (0.82) | (-2.90) |
| CAPEX | 0.425\*\*\* | -0.293\*\*\* |  | -1.519\*\*\* | -0.152\*\* |
|  | (3.07) | (-3.24) |  | (-17.12) | (-2.22) |
| NWC | 0.0141\*\* | 0.0546\*\*\* |  | 0.0304\*\*\* | -0.00661\* |
|  | (2.26) | (17.88) |  | (4.40) | (-1.78) |
| Firm Size | 0.894\*\*\* | 0.322\*\*\* |  | 1.332\*\*\* | 1.297\*\*\* |
|  | (75.40) | (26.44) |  | (30.28) | (86.77) |
| FAG | 0.0387\*\*\* | 0.336\*\*\* |  | 0.134\*\*\* | 0.0739\*\*\* |
|  | (4.10) | (74.86) |  | (16.88) | (8.51) |
| Altman Score | -0.101\*\*\* | 0.322\*\*\* |  | 0.0291 | -0.206\*\*\* |
|  | (-6.67) | (26.44) |  | (1.08) | (-15.51) |
| ETR | 0.0201\*\*\* | -0.0464\*\*\* |  | -0.0210\*\*\* | -0.00361\* |
|  | (5.50) | (-43.79) |  | (-5.41) | (-1.72) |
| LC |  | -0.176\*\*\* |  | -0.0578\*\*\* | -0.0120819 |
|  |  | (-41.12) |  | (-4.41) | (-1.63) |
| AI Investment X LC |  | 0.03037\*\*\* |  | 0.102\*\*\* | 0.009893\*\*\* |
|  |  | ( 5.96) |  | (3.40) | ( 3.34 ) |
| N | 343 | 342 |  | 289 | 188 |
| AR1 | 0.171 | 0.125 |  | 0.126 | 0.147 |
| AR2 | 0.001 | 0.002 |  | 0.002 | 0.001 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Table 7: AI investment, Institutional quality and firm growth**  This table reports the institutional relationship quality on the relationship between LC, AI and growth. Institutional quality is measured using the talent management information asymmetry (. Detailed definition of all the relevant variables can be found in Table 1. Standard errors are shown in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at 1%, 5% and 10% levels, respectively. | | | | | |
|  | Firmsize | High Performance | High R&D | |  |
| Firm Growth | 0.0434\* | 0.0332\*\*\* | 0.0332\*\*\* | |  |
|  | (1.75) | (4.38) | (4.38) | |  |
| AI investment | 0.00435\*\* | 0.00177\* | 0.00177\* | |  |
|  | (2.22) | (1.69) | (1.69) | |  |
| AI Investment X Information Asymmetry | 0.178\*\*\* | 0.0777\*\*\* | 0.0777\*\*\* | |  |
|  | (3.62) | (3.36) | (3.36) | |  |
|  |  |  |  | |  |
| MBV | 0.0366\*\*\* | 0.0135\*\*\* | 0.0135\*\*\* | |  |
|  | (5.83) | (3.52) | (3.52) | |  |
| NOL | -0.0820\*\* | -0.0868\*\*\* | -0.0868\*\*\* |  | |
|  | (-2.45) | (-5.03) | (-5.03) |  | |
| REPOTAX | 3.255\*\*\* | 1.767\*\*\* | 1.767\*\*\* |  | |
|  | (4.61) | (3.94) | (3.94) |  | |
| CAPEX | -0.113 | -0.507\*\*\* | -0.507\*\*\* |  | |
|  | (-0.39) | (-3.28) | (-3.28) |  | |
| NWC | 0.0625\*\*\* | 0.0148 | 0.0148 |  | |
|  | (3.27) | (1.49) | (1.49) |  | |
| Firm Size | 0.120\*\*\* | 0.133\*\*\* | 0.133\*\*\* |  | |
|  | (3.75) | (5.23) | (5.23) |  | |
| FAG | 0.0188 | 0.0370\*\*\* | 0.0370\*\*\* |  | |
|  | (0.62) | (4.63) | (4.63) |  | |
| Altman Score | -1.048\*\*\* | -1.065\*\*\* | -1.065\*\*\* |  | |
|  | (-28.22) | (-54.48) | (-54.48) |  | |
| ETR | 0.0175\*\* | -0.00822\*\*\* | -0.00822\*\*\* |  | |
|  | (2.28) | (-2.81) | (-2.81) |  | |
| N | 486 | 278 | 278 |  | |
| AR1 | 0.115 | 0.134 | 0.187 |  | |
| AR2 | 0.001 | 0.001 | 0.01 |  | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Table 8: AI Investment, firm policies and growth** | | | | | | |
| This table presents the results of the relationship between AI investment, firm policies and growth. Firm policies are measured by three firms' policies, namely: innovation, dividend payments and firms' investment. Firms' innovation policy is measured using R&D ratio approximated as R&D expenses over total assets. Dividend payments are measured as a dummy variable that takes a value of one if a firm paid a dividend over the last fiscal year and zero if otherwise. We adopt three investment policies (fixed-income investment, capital expenditure and cash acquisition). We measured investment policies, as a dummy variable that takes a value of one of the values of the three investment policies are greater than their median values and zero if otherwise. Detailed definition of all the variables is in Table 1. A year and industry dummies are included in the estimations. T statistic in brackets. \*\*\*, \*\*, and \* indicate statistical significance at 1%, 5% and 10% levels, respectively. | | | | | | |
|  | R&D | Dividend | Investment | R&D | Dividend | Investment |
|  | Labour share | Labour share | Labour share | Labour cost | Labour cost | Labour cost |
| Firm Growth | 0.00937 | -0.00552 | 0.0297\*\* | -0.0293\*\*\* | -0.00824 | 0.0114 |
|  | (0.90) | (-0.28) | (2.24) | (-5.32) | (-1.07) | (0.66) |
| AI investment | -0.00259\*\* | -0.00190 | -0.00323\*\* | -0.00183\*\*\* | -0.00215\*\*\* | -0.00336\*\* |
|  | (-2.56) | (-0.79) | (-2.06) | (-4.11) | (-3.20) | (-2.04) |
| MBV | 0.0103\*\*\* | 0.0179\*\*\* | 0.0241\*\*\* | 0.0135\*\*\* | 0.0210\*\*\* | 0.0339\*\*\* |
|  | (3.30) | (3.10) | (3.69) | (5.69) | (5.54) | (5.12) |
| NOL | -0.0563\*\*\* | -0.0296 | -0.0653\*\*\* | -0.0275\*\*\* | -0.0590\*\*\* | -0.0549\*\*\* |
|  | (-5.79) | (-1.24) | (-3.52) | (-5.02) | (-4.44) | (-3.37) |
| REPOTAX | 0.997\*\* | 1.079\* | 1.412\*\*\* | 0.0359 | 0.302 | 0.260 |
|  | (2.53) | (1.65) | (2.60) | (0.23) | (1.31) | (0.44) |
| CAPEX | 0.307\*\* | -0.543\*\* | -0.0207 | -0.175\*\* | 0.262\*\* | -0.449\*\* |
|  | (2.00) | (-1.98) | (-0.11) | (-2.17) | (2.23) | (-1.96) |
| NWC | 0.0195\*\* | 0.0543\*\*\* | 0.0602\*\*\* | 0.00383 | 0.0303\*\*\* | 0.0116 |
|  | (2.03) | (3.81) | (3.54) | (0.57) | (3.05) | (0.74) |
| Firm Size | 0.0768\*\*\* | 0.0518\*\* | 0.0827\*\*\* | 0.221\*\*\* | 0.0384\*\* | 0.248\*\*\* |
|  | (4.76) | (2.07) | (3.37) | (19.72) | (2.42) | (6.81) |
| FAG | 0.0741\*\*\* | 0.150\*\*\* | 0.0871\*\*\* | 0.0215\*\*\* | 0.0655\*\*\* | 0.0667\*\*\* |
|  | (6.13) | (7.42) | (4.57) | (4.51) | (7.71) | (3.34) |
| Altman Score | -0.943\*\*\* | -1.105\*\*\* | -1.095\*\*\* | -1.001\*\*\* | -1.175\*\*\* | -1.102\*\*\* |
|  | (-45.97) | (-44.32) | (-41.74) | (-64.01) | (-96.99) | (-29.39) |
| ETR | 0.00367 | 0.0151\*\* | 0.00673 | -0.0101\*\*\* | -0.0130\*\*\* | -0.0154\*\*\* |
|  | (1.17) | (2.20) | (1.34) | (-6.32) | (-6.12) | (-3.36) |
| AI Investment X LC | 0.0394\*\*\* | 0.0483\*\*\* | 0.0237\*\*\* | 0.00744\*\*\* | 0.0269\*\*\* | 0.0178\*\*\* |
|  | (7.67) | (4.69) | (3.43) | (2.79) | (5.64) | (2.98) |
| N | 366 | 383 | 486 | 305 | 320 | 411 |
| AR1 | 0.142 | O.123 | 0.154 | 0.189 | 0.146 | 0.116 |
| AR2 | 0.001 | 0.002 | 0.005 | 0.002 | 0.001 | 0.001 |

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| **Table 9: AI, labour market conditions on firm performance** This table reports the relationship between AI, labour market conditions on firm performance. We define firm performance using ROA. Detailed definition of all the relevant variables can be found in Table 1. Standard errors are shown in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at 1%, 5% and 10% levels, respectively | | | | | |
|  | Firm Performance Growth | Labour Share |  | Labour Cost | Labour Productivity |
| Firm Growth | 0.182\*\*\* | 0.224\*\*\* |  | -0.0473 | 0.199\*\*\* |
|  | (3.93) | (5.33) |  | (-0.86) | (7.21) |
| AI investment | 0.00335\*\*\* | 0.00518\*\*\* |  | 0.00452\*\*\* | 0.00369\*\*\* |
|  | (2.66) | (4.25) |  | (3.65) | (4.38) |
| MBV | 0.0159\*\*\* | 0.0152\*\*\* |  | 0.0146\*\*\* | 0.0114\*\*\* |
|  | (7.09) | (7.92) |  | (5.73) | (7.39) |
| NOL | -0.0602\*\*\* | -0.0387\*\*\* |  | -0.0262\*\* | -0.0163\*\*\* |
|  | (-5.59) | (-4.63) |  | (-2.27) | (-2.66) |
| REPOTAX | -1.153\*\*\* | -0.956\*\*\* |  | -0.444 | -1.053\*\*\* |
|  | (-3.52) | (-4.27) |  | (-1.44) | (-4.57) |
| CAPEX | -0.316\*\* | -0.208\* |  | 0.0163 | -0.539\*\*\* |
|  | (-2.01) | (-1.75) |  | (0.11) | (-4.01) |
| NWC | 0.0141\*\* | 0.0170\*\*\* |  | 0.0149\*\* | 0.00410 |
|  | (2.36) | (3.19) |  | (2.02) | (1.06) |
| Firm Size | -0.150\*\*\* | -0.137\*\*\* |  | 0.0507\*\*\* | -0.0870\*\*\* |
|  | (-11.66) | (-12.58) |  | (2.75) | (-9.74) |
| FAG | -0.0489\*\*\* | -0.0363\*\*\* |  | -0.0234\*\*\* | -0.0106\*\*\* |
|  | (-6.69) | (-6.31) |  | (-3.72) | (-2.79) |
| Altman Score | 0.157\*\*\* | 0.141\*\*\* |  | 0.109\*\*\* | 0.217\*\*\* |
|  | (12.70) | (13.31) |  | (6.01) | (23.64) |
| ETR | 0.0120\*\*\* | 0.0138\*\*\* |  | 0.00752\*\*\* | 0.00745\*\* |
|  | (5.07) | (8.07) |  | (3.99) | (2.55) |
| AI Investment X LC |  | 0.111\*\*\* |  | 0.0127\*\*\* | 0.0127\*\*\* |
|  |  | (4.55) |  | (5.72) | (6.98) |
| N | 361 | 361 |  | 305 | 195 |
| AR1 | 0.102 | 0.139 |  | 0.124 | 0.189 |
| AR2 | 0.001 | 0.001 |  | 0.01 | 0.001 |
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| **Table10: The Crises effect**  This table presents the results of the effects of financial crises on the relationship between AI investment and growth. A dummy variable is a proxy for crisis 1 for the crisis periods (1991, 2001, 2007, 2008, and 2009) and 0 for any other years. Columns (1) of Table 10 reports the results on the impact of AI investment on firms growth during the crisis periods, while columns (2) –(4) presents results on the interactive effect of LC and AI investment on firms growth during financial crisis periods. Detailed definition of all the relevant variables can be found in Table 1. Standard errors are shown in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at 1%, 5% and 10% levels, respectively. | | | | | | | | | | | | |
|  | | Firm Growth | | Labour Share |  | labour Cost | | | | labour Productivity | | |
| Firm Growth | | 0.0299\*\* | | 0.0297\*\* |  | 0.0403 | | | | 0.0616\*\*\* | | |
|  | | (2.05) | | (2.24) |  | (1.51) | | | | (4.68) | | |
| AI investment | | 0.00328\*\* | | -0.00323\*\* |  | -0.00260 | | | | 0.00158 | | |
|  | | (2.29) | | (-2.06) |  | (-1.21) | | | | (1.04) | | |
| MBV | | 0.0135\*\* | | 0.0241\*\*\* |  | 0.0499\*\*\* | | | | 0.00927 | | |
|  | | (2.42) | | (3.69) |  | (5.21) | | | | (1.56) | | |
| NOL | | -0.0441\*\*\* | | -0.0653\*\*\* |  | -0.0488 | | | | -0.132\*\*\* | | |
|  | | (-2.76) | | (-3.52) |  | (-1.53) | | | | (-7.42) | | |
| REPOTAX | | -2.006\*\*\* | | -0.360 |  | -1.391\* | | | | -1.472\*\*\* | | |
|  | | (-4.62) | | (-0.78) |  | (-1.81) | | | | (-3.92) | | |
| CAPEX | | -0.0397 | | -0.0207 |  | -0.817\*\* | | | | -1.008\*\*\* | | |
|  | | (-0.20) | | (-0.11) |  | (-2.37) | | | | (-4.14) | | |
| NWC | | 0.0238\*\* | | 0.0602\*\*\* |  | 0.00163 | | | | 0.0193 | | |
|  | | (2.06) | | (3.54) |  | (0.06) | | | | (1.55) | | |
| Firm Size | | 0.163\*\*\* | | 0.0827\*\*\* |  | 0.152\*\*\* | | | | 0.221\*\*\* | | |
|  | | (6.07) | | (3.37) |  | (2.73) | | | | (5.99) | | |
| FAG | | 0.00790 | | 0.0327\*\* |  | 0.0687\*\* | | | | 0.127\*\*\* | | |
|  | | (0.55) | | (2.13) |  | (2.24) | | | | (7.54) | | |
| Altman Score | | -0.959\*\*\* | | -1.095\*\*\* |  | -1.126\*\*\* | | | | -1.147\*\*\* | | |
|  | | (-26.09) | | (-41.74) |  | (-19.28) | | | | (-46.03) | | |
| ETR | | -0.00484 | | 0.00673 |  | -0.0183\*\* | | | | -0.0150\*\*\* | | |
|  | | (-1.47) | | (1.34) |  | (-2.33) | | | | (-3.16) | | |
| AI Investment X LC | |  | | 0.0237\*\*\* |  | 0.0332\*\* | | | | 0.0121\*\*\* | | |
|  | |  | | (3.43) |  | (2.21) | | | | (3.77) | | |
|  | | 361 | | 486 |  | 411 | | | | 265 | | |
| AR1 | 0.112 | | 0.152 | | | | 0.174 | |  | | 0.19 | | |
| AR2 | 0.001 | | 0.001 | | | | 0.01 | |  | | 0.001 | | |
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