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The Regional Structure of Technical Innovation DION O'NEALE, Univ of Auckland — There is strong evidence that the productivity *per capita* of cities and regions increases with population. One likely explanation for this phenomenon is that densely populated regions bring together otherwise unlikely combinations of individuals and organisations with diverse, specialised capabilities, leading to increased innovation and productivity. We have used the REGPAT patent database to construct a bipartite network of geographic regions and the patent classes for which those regions display a revealed comparative advantage. By analysing this network, we can infer relationships between different types of patent classes - and hence the structure of (patentable) technology. The network also provides a novel perspective for studying the combinations of technical capabilities in different geographic regions. We investigate measures such as the diversity and ubiquity of innovations within regions and find that diversity (resp. ubiquity) is positively (resp. negatively) correlated with population. We also find evidence of a nested structure for technical innovation. That is, specialised innovations tend to occur only when other more general innovations are already present.

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