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Long Term Consequences of Natural Resource Booms for Human Capital Accumulation

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Long term consequences of natural resource booms for human capital accumulation

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Abstract. Tight labour markets driven by resource booms could increase the opportunity cost of schooling and crowd out human capital formation. For oil producing economies like the Province of Alberta, the OPEC oil shocks of 1973 to 1981 may have had an adverse long term effect on the productivity of the labor force if the oil boom resulted in workers reducing their ultimate investment in human capital rather than merely altering the timing of schooling. We analyze the effect of this decade long oil-boom on the long-term human capital investments and productivity for Alberta birth cohorts that were of normal schooling ages before, during and after the oil boom. Our findings suggest that resource booms may change the timing of schooling but they do not reduce the total accumulation of human capital.

Key words: Resource booms, long term human capital accumulation, OPEC oil crisis

JEL codes: J24, I21, I22

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Executive Summary

Does natural resource wealth reduce future income levels by crowding out human capital formation? Standard models of human capital acquisition predict that a decline in the relative skill premium will induce individuals to leave school since the opportunity cost of schooling rises. This effect may be even more pronounced in the case of resource booms. Because resource industries traditionally employ low skilled workers, high wages arising from resource booms may crowd out human capital formation by pulling young individuals out of school. While evidence to date shows that resource booms reduce school enrolment, whether or not this is a long run problem for an economy depends on whether the short run reduction in enrolment reflects permanently lower levels of school attainment, a mere interruption to schooling that does not change ultimate educational attainment, or a source of finance that ultimately leads to higher levels of schooling.

In this paper, we explore the long term effects on human capital formation of natural resource booms using the Alberta 1973-1981 oil-boom. We use a variety of data to assess the human capital accumulation of the cohorts of Albertans most affected by the oil boom. The 2003 International Adult Literacy Survey (IALS) allows us to look at the schooling attainment and literacy achievement of these cohorts compared to the rest of Canada. The IALS offers an in-depth look into skills accumulation because of the inclusion of a direct measure of cognitive skills through literacy tests. Further, literacy measures also allow us to obtain better estimates of the determinants of labour market success. In addition, we use Census data to construct synthetic cohorts which we follow over time to track the evolution of their schooling achievement over the years and assess the long term consequences of the oil boom.

Our findings support the idea that economic booms may change the timing of schooling, rather than having long term negative effects on the total accumulation of human capital, particularly at low levels of education. That is, the short run reductions in schooling enrolment during a resource boom result in higher levels of educational attainment in the long run suggesting that transitory labor demand shocks are beneficial to the economy rather than a source of harm as alleged in the 'resource curse' literature.

Taking into consideration the historically lower levels of educational attainment of

Albertans compared to the rest of Canada, it appears that higher oil prices resulted in greater investment in human capital amongst school aged Albertans during the boom, albeit the higher level of education was non-university post-secondary rather than university compared to the rest of Canada. Overall it would seem that natural resource booms enhance human capital formation rather than crowding it out. These human capital benefits of the resource boom do not persist beyond the boom. In Alberta, the return to lower oil prices saw the return of lower educational attainment of Albertans relative to their peers in the rest of Canada.

The results fit with a model where educational choices are not permanent and individuals may come back to school at a later date if they decide to leave at the time of the resource boom. Assuming that schooling decisions are not permanent also explains the result that while the boom seems not to have long lasting effects on educational attainment, the subsequent bust does. Individuals who leave school during a resource boom may have the chance to use the accumulated earnings to go back to school later on, but those who leave school because of a recession may not have the same resources to do so. This is of relevance when thinking of educational policies to finance public education. Offering easy access to post secondary education or high school completion for individuals affected by a resource bust may be helpful as part of a comprehensive package to help displaced workers.