

# *Mobilising Labour in Remote 'Boom' Towns for Economic Diversification: The case of Tennant Creek*

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## KEY FINDINGS

This research on Tennant Creek used Census data to examine the potential for sustainable local economic development and found:

- Tennant Creek has been able to adapt its local labour force to take advantage of new economic opportunities, although jobs have been highly concentrated in a small number of industries, mainly the public service since 2001.
- From 2001 to 2011, there was a substantial shift towards the opportunity industries focused on the public service activities of health, education and government administration. These accounted for less than half of the employment opportunities in 2006 but nearly two thirds by 2011.
- Concerns remain about the town's strong dependence on public service sector employment, major unrealised potential in the tourism and transaction service sectors, and declining participation of Indigenous residents in economic 'boom' industries.
- The largest decline in the resident Indigenous labour force was in the health industry where Indigenous residents went from comprising 42% of the resident workforce in 2006 to 28% in 2011.
- The Indigenous workforce was much more concentrated in fewer industries than the non-Indigenous workforce, and Indigenous employment declined between 2006 and 2011 in the 'opportunity industries' (mining, construction, tourism, transport, transaction services, government administration, education and health).

## RESEARCH AIM

*To examine the potential for sustainable local economic development through a case study of a small and isolated settlement dependent on externally driven economic opportunities.*

*This brief is a summary of the case study of Tennant Creek in the Northern Territory of Australia, and the town's capacity to mobilise its labour force and diversify in response to a range of new economic opportunities and government service sectors.*

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## 1. INTRODUCTION

New economic opportunities in remote areas are often linked to major private and public sector investment projects which are controlled by external decision-makers and lead to temporary periods of economic 'boom'. Settlements in sparsely populated or remote areas in countries such as Australia, Canada, the United States and the Arctic European nations, are commonly perceived to be inherently disadvantaged socially and economically because of their isolation from social services, economic and political power centres [Carson et al., 2011; Huskey, 2011]. Even when economic opportunities present for a number of remote locations as a result of the mineral and oil and gas resources 'booms', the benefits are believed to accrue primarily to distant large urban centres where resource extraction companies are based [Argent, 2013]. Income derived from employment in the resources sector is channelled away from sparsely populated areas by the use of non-resident and temporarily resident labour, with little in the way of local employment [Carrington and Pereira, 2011].

Through a series of case studies of small settlements in remote parts of Alaska, Huskey (2011) demonstrated that local engagement in various economic activities is possible and can deliver local social and economic benefit. This research examines Huskey's arguments about the potential for sustainable local economic development through a case study of a small and isolated settlement, Tennant Creek, in Australia's Northern Territory. By analysing local labour changes from 2001 to 2011, the research examined the town's capacity to mobilise its labour force and diversify in response to new opportunities offered by a range of economic 'booms' in the mining, construction, transport, tourism, health, education and government service sectors. This brief is a summary of a full research paper which is published in the journal *Bulletin Buryat State University: Inner Asia Studies in the Humanities* (Carson & Carson, 2013).

## 2. BACKGROUND

Central to Huskey's argument that even very small and isolated settlements can experience sustained economic growth [Huskey, 2011], was the need for local economies to be able to diversify in response to new opportunities. The potential for diversification means the capacity to rapidly mobilise local human resources in response to political, social and economic change, as well as to bring in external human (and financial) capital to supplement and complement, rather than displace, local labour. The story of Tennant Creek emphasises that resource extraction (including mining, fishing, forestry and pastoralism) is not the only potentially valuable economic activity in sparsely populated areas. These areas have also long been

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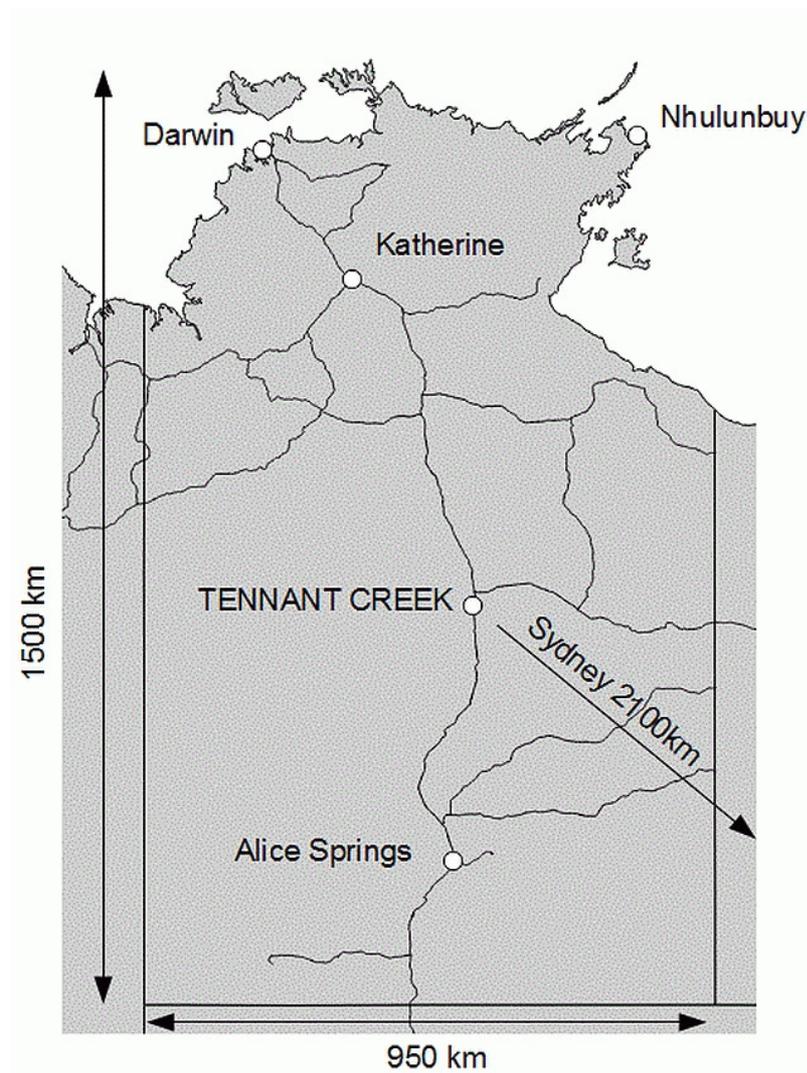
associated with defence, transport, and more recently tourism economies, as well as substantial industries built around the delivery of health and social services particularly to Indigenous populations [Guerin and Guerin, 2009; Huskey, 2011; Schmalleger, Carson and Tremblay, 2010] and can be subject to ‘boom and bust’ cycles and a reliance on external investors and external and temporary labour. What is not known is whether and how the potential mix of opportunities available to settlements in sparsely populated areas can be exploited for more local benefit.

Evidence of the potential for diversification in the local economy can be found in the characteristics of the labour force and how these change over time. Local economies with high diversification potential enable resident labour to shift between industries and occupations as labour demand changes. Local economies with high diversification potential are able to exploit, rather than be exploited, externally sourced and temporary human capital [Weeden, 1985]. Local economies with high diversification potential create employment in what O’Malley termed ‘transaction services’ industries – finance, property and legal services [O’Malley, 2012].

### **3. A CASE STUDY OF TENNANT CREEK**

Tennant Creek is the Northern Territory’s fifth largest settlement, located 1,000 kilometres south of the capital city of Darwin and 500 kilometres north of Alice Springs (population 25,000), which is the nearest settlement with a population over 1,000 people (Figure 1). Tennant Creek has long been considered to be socially and economically disadvantaged as a result of its isolation, small population, and relatively large Indigenous population (35%, compared with 2% nationally). The Index of Economic Resources (part of the Socio-Economic Indexes for Areas (SEIFA) derived from the 2011 Australian Census of Population and Housing) ranked Tennant Creek amongst the most disadvantaged 10% of locations across Australia [Australian Bureau of Statistics, 2011].

**Figure 1: Location of Tennant Creek in the Northern Territory**



Between 2001 and 2011, particularly between 2006 and 2011, substantial new economic development opportunities emerged for Tennant Creek, representing a diverse range of economic activities, providing opportunities for employment and entrepreneurship in the transport, construction, mining, hospitality, health and government services sectors, as well as the potential for flow-on employment and entrepreneurship in linked sectors and in the retail industry.

This case study examines –

- The extent to which the high level and diverse nature of the economic opportunities presented for Tennant Creek have impacted the characteristics of the local labour force, and whether those impacts demonstrate Tennant Creek’s potential for local economic diversification;

- The extent to which jobs held by Tennant Creek residents shifted towards the industries within which the opportunities arose – mining, transport, hospitality and retail (as a proxy for tourism), construction, health, education, and government administration along with transaction services;
- The changing nature of entrepreneurship, and the occupation and skill levels of people working in the town as additional evidence of diversification potential;
- In general, the labour forces with higher skill levels (demonstrated through university qualifications) and higher proportions of managerial and professional workers who are more able to adapt to changing conditions [Gordon, 1995];
- The characteristics of the Indigenous and non-Indigenous, male and female, and resident, non-resident and temporary labour forces.

It also contributes to the discourse around economic potential for settlements in sparsely populated areas by providing a methodological framework for examining the diversification potential of local economies.

#### **4. METHODOLOGY**

Research data were drawn from 2001, 2006 and 2011 Australian Census of Population and Housing ([www.abs.gov.au](http://www.abs.gov.au)) information with a focus on 2006 and 2011 data using the 'TableBuilder' online database. Tennant Creek was considered to be the Statistical Local Area name of that area.

Several variables from the Census were used:

- 'Labour force status' was used to identify people who participated in the labour force (i.e. who were working or actively seeking work), and whether those people were employed or unemployed.
- Industries were those characterised in the Australian and New Zealand Standard Industrial Classification (ANZSIC).
- Opportunity industries were: mining, construction, retail trade and accommodation and food services (as a proxy for and referred to as tourism), transport, postal and warehousing (referred to as transport), financial and insurance services and rental, hiring and real estate services (as a proxy for and referred to as transaction services), public administration and safety (referred to as government administration), education

and training (referred to as education), and health care and social assistance (referred to as health).

For the purposes of this research, those industries are collectively labelled 'opportunity industries' as they encompass the economic opportunities categorised for Tennant Creek.

ANZSIC includes nine other industries, and the distribution of employment across all 19 industries was summarised using a Herfindahl Index (HI) of concentration [Clemenson, 1992; Carson, 2011] to measure diversification. HI scores range between 0 and 1, with a higher HI indicating higher concentration of employment in fewer industries. Clemenson considered an index score of 0.3 or greater to indicate high concentration and therefore low diversification [Clemenson, 1992].

Other Census variables used for this research and separate analysis were:

- People who state that they own or manage their own business (used as a proxy for entrepreneurship);
- Educational qualifications, (termed as 'university qualified' people);
- Occupations as managerial, professional, and labourer; and
- Technicians and trades workers, community and personal services workers, and machinery operators (termed as 'skilled or semi-skilled workers').

These variables were separately analysed and specifically focused on identifying change in the representation of Indigenous people and females in the labour force.

The Census variables used for types of workers were:

- Place of usual residence of a person on Census night (where the person intends to reside for the larger part of the calendar year in which the Census was conducted);
- Place of usual residence five years prior to Census night; and
- The place where the person usually works.

From these variables, the research identifies three types of workers:

1. 'Long term resident' workers - those with a place of usual residence in Tennant Creek on Census night and five years prior to Census night.
2. 'Newly resident' workers - those with a place of usual residence in Tennant Creek on Census night but a place of usual residence elsewhere five years prior to Census night (termed as 'temporary' workers).
3. 'Non-resident' workers - those with a place of usual residence on Census night outside of Tennant Creek, but who stated their usual place of work as being Tennant Creek.

## 5. RESULTS

### 5.1 Workforce Structure

There were 1,103 residents of Tennant Creek participating in the labour force in 2001, which increased to 1,177 in 2006 and 1,267 by 2011. There were 1,188 jobs in 2001, 1,072 in 2006, and 1,116 in 2011. The number of residents with university qualifications increased from 14% of the labour force in 2001 to 20% in 2011. This coincided with a doubling of managerial jobs during the period (from 73 to 144), and a 30% increase in the number of professional jobs (from 177 to 229). There was no change in the number of skilled/semi-skilled or labourer jobs. In addition, there were 17 more business owners (128 in total) resident in Tennant Creek in 2011 than in 2006, with the largest number of business owners working in the tourism (29 in 2006 and 39 in 2011) and construction industries (19 in 2006, 24 in 2011). There were 12 business owners in the transaction services industries in 2006, but none in 2011.

**Table 1: Tennant Creek Workforce Structure 2001 – 2011.**

Variable	2001	2006	2011
Number of residents participating in the workforce	1103	1177	1267
Number of jobs in Tennant Creek	1188	1072	1116
Number of residents with university qualifications	158 (14%)	-	251 (20%)
Number of managerial jobs	73	-	144
Number of professional jobs	177	-	229
Total Number of business owners	111		128
Number of business owners in tourism & construction industry	29 & 19		39 & 24
Number of business owners in transaction services industries	12		0

Employment was relatively highly concentrated in a few industries in 2001, with a HI of 0.31, and became more concentrated in 2006 and 2011 with a HI of 0.36 at both points in time.

Overall, there were 119 more jobs in the opportunity industries in 2011 than in 2001 and 36 more jobs in 2011 than in 2006. However, Table 2 shows substantial job growth in government administration, and education, and a decline in tourism and transaction services. Interestingly, there was a decline in health jobs between 2006 and 2011.

**Table 2: Number of Tennant Creek Residents Employed in 'Opportunity' and 'Transaction' Industries 2001 – 2011.**

Industry	2001	2006	2011	Change 2001- 2011	Change 2006- 2011
Mining	14	24	28	14	4
Transport	27	11	24	-3	13
Tourism	203	203	173	-30	-30
Health	146	185	170	24	-15
Education	118	131	143	25	12
Government Administration	131	252	286	155	34
Construction	93	70	96	3	26
Transaction services	87	26	18	-69	-8
Total 'opportunity' industries	819	902	938	119	36
Herfindahl Index	0.31	0.36	0.36		

## 5.2 Labour Composition

The Indigenous workforce was much more concentrated in fewer industries (especially in health) than the non-Indigenous workforce, as reflected in the HI for Indigenous employment which was 0.43 in 2006 and 2011, compared with a non-Indigenous HI of 0.34. Table 3 summaries results for labour composition in Tennant Creek.

**Table 3: Labour composition in the Tennant Creek Workforce 2006 – 2011.**

Variable	2006	2011
Indigenous residents (aged 15-64 years) in the labour force	34%	31%
Indigenous residents (aged 15-64 years) in the workforce	30%	27%
Indigenous representation (overall) in opportunity industries	251 jobs	228 jobs
Indigenous representation (jobs) in the health industry	42% (77)	28% (48)
Indigenous representation (jobs) in the education industry	22% (29)	17% (24)
Indigenous representation (jobs) in government administration	38% (99)	38% (105)
Indigenous residents (adults) with university qualifications	1%	3% (25)
Non-Indigenous residents (adults) with university qualifications	17% (157)	24% (230)
Indigenous residents in managerial jobs	14%	13%
Indigenous residents in professional jobs	24%	23%
Indigenous residents in labourer jobs	48%	45%
Indigenous residents business owners (% of all business owners)	11 (10%)	20 (16%)

Indigenous representation in the opportunity industries overall decreased by 4% (251 to 228 jobs) from 2006 to 2011, with increases only in the small industries of transport (eight jobs in 2011) and transaction services (three jobs in 2011) where there had been no Indigenous people working in 2006. The largest decline in Indigenous representation was in the health industry, where Indigenous residents went from comprising 42% of the resident workforce in 2006 (77 jobs) to just 28% in 2011 (48 jobs). A less dramatic decline occurred in the education industry from 22% (29 jobs) to 17% (24 jobs), while representation in government administration remained at around 38% (99 jobs in 2006 and 105 jobs in 2011).

Just nine Indigenous residents aged 15 years and older (1%) had a university qualification in 2006, compared with 17% of the non-Indigenous working age population (157 people). While the number and proportion of Indigenous people with qualifications increased in 2011 (25 people or 3% of the working age population), it was the same for the non-Indigenous population (230 people or 24% of the working age population).

### 5.3 Gender differences

Females comprised slightly less than half of the total resident workforce, with 526 employed in 2006 and 582 in 2011, but were substantially more likely than males to have university qualifications. Over two thirds of the 168 qualification holders in 2006 were females and, while this declined to 62% in 2011, there were 156 qualified females in the resident labour force at

that time. Females were similarly over-represented in the professional workforce (66% of professionals were females in both 2006 and 2011), but under-represented in the skilled/semi-skilled (about 35%) and labourer (30%) workforces.

**Table 4: Gender – Variables for Females and Males 2006–2011.**

Variable	2006	2011
Overall women labour workforce participation	52%	53%
Overall male labour workforce participation	56%	56%
Female unemployment/Total resident workforce	7% / 526	7% / 582
Female employment HI concentration in industries	0.39	0.41
Female representation in health workforce	61%	71%
Female representation in government administration workforce	45%	52%
Female representation overall in opportunity industries	51%	53%
Female representation as managers	46%	39%
Female representation as business owners	30%	30%

#### 5.4 Resident Types

Overall, long term residents comprised 5% less of the opportunity industries workforce in 2011 (51%) than in 2006 (56%). Despite this, long term residents gained comparatively more jobs in mining, transport, tourism and transaction services. However, these gains were outweighed by comparatively fewer new jobs in health, education, government administration and construction accruing to long term residents (Table 5).

**Table 5: Number of Long Term Residents, New Residents and Non-Residents Employed in ‘Opportunity’ and ‘Transaction’ Industries 2006 - 2011**

Industry	2006			2011			Increase in Representation of Long Term Residents
	Long Term Residents	Newly Resident	Non-Resident	Long Term Residents	Newly resident	Non-Resident	
Mining	4	6	14	18	11	10	29%
Transport	7	3	3	17	7	0	17%
Tourism	105	95	9	103	69	11	6%
Health	109	74	10	80	91	16	-13%
Education	69	59	8	69	70	6	-3%
Government Administration	161	93	17	151	133	9	-7%

Construction	59	9	0	65	31	15	-28%
Transaction services	14	9	0	13	7	0	4%
Total 'opportunity' industries	528	348	61	516	419	67	-5%

The long term and non-resident workforces were similarly diverse in terms of industries of employment in 2011 as they were in 2006, with HI of 0.35. However, the HI for the newly resident workforce was 0.38 in 2006 and 0.40 in 2011, suggesting an increase in concentration of employment. Long term residents, newly resident and non-resident workers were all more likely to have university qualifications in 2011 compared with 2006. Table 6 provides a summary of these results.

**Table 6: Resident Types – Three types of workers 2006–2011.**

Variable	2006	2011
Long term residents in the workforce	654 (58%)	639 (53%)
Newly resident workers	384 (34%)	473 (40%)
Non-resident workers	85 (8%)	85 (7%)
Long term resident business owners	96	106
Long term resident workers with qualifications	8%	13%
Long term residents in managerial, professional and labourer jobs	65%, 40% and 68%	65%, 40% and 53%
Newly resident and Non-resident workers with qualifications	30% and 22%	40% for both

## 6. DISCUSSION

According to Clemenson's Herfindahl Index benchmark [Clemenson, 1992], the Tennant Creek workforce is, and has been since 2001, highly concentrated in a small number of industries. This shifting appears to have occurred to some extent in Tennant Creek, with approximately 120 of the 154 new jobs for residents emerging in the industries associated with the new economic opportunities (transport, construction, mining, hospitality, health and government services sectors). There was some evidence in the transport, health, and construction industries of 'serial specialisation' – the capacity to load up the workforce at very specific points in time in response to opportunities. For transport and construction this meant relatively large workforces in 2001 and 2011, but relatively low in 2006. For health, there was a 2006 workforce peak.

There are some concerns in the broader picture of the changing characteristics of the Tennant Creek labour force. While there was a substantial shift towards the opportunity industries, the focus of the shift, both in absolute and proportional terms, was on the public service activities of health, education, and government administration. These three industries accounted for less than half of the employment in the opportunity industries in 2001, but nearly two thirds of employment by 2011. Transport and construction workforces fluctuated in size without substantial overall growth, but the major unrealised opportunities appeared to have been in tourism and transaction services. Transaction services experienced an 80% decrease in workforce size over the period.

What cannot be assessed from this research is what happens to the workforce growth that has been focused on public services activities when those programs and policies are wound down or wound up. If this results in a withdrawal of the workforce (i.e. from health, education and government administration activities), then that would be coupled with the collective decline in the other opportunity industries and could be crippling for the Tennant Creek economy. The most at risk would be the resident Indigenous population for whom opportunity industries declined between 2006 and 2011. There was a shift in the overall Indigenous workforce to more highly skilled jobs and a limited increase in the diversification potential. Priming the Indigenous workforce through improved education and training is likely to be a task that takes longer than the timeframe within which specific economic opportunities emerge and disappear. Therefore considered thought needs to be given to the process.

The same concerns are not apparent for the female workforce where the concentration of employment in the public service activities and the professional occupations appear to favour females. Again, there is the longer term concern about whether those attributes can be shifted to other industries if and when the public services activities wind down.

The evidence is long term residents have been more able to take up opportunities in the non-public services opportunity industries than in the public services industries. Long term resident employment in mining, transport, and tourism increased even as overall these industries declined relative to health, education and government administration. These also appeared better able to capitalise on entrepreneurship opportunities and remained over-represented among business owners. However, as with the Indigenous workforce (and there is obviously a

substantial overlap between Indigenous and long term resident workforces), there is a need to better prepare long term residents to take advantage of public services opportunities. This could be through generalised education and identifying and encouraging entrepreneurial opportunities in health and education in particular.

## **7. CONCLUSION**

The research presents a mixed 'report card' on the potential for diversification in Tennant Creek. There is evidence that the identified opportunity industries did stimulate workforce growth and diversification overall between 2001 and 2006, but the benefits accrued mainly in the public services industries of health, education, and government services, and these jobs were more likely to go to newly resident workers and non-Indigenous workers.

While the issue of time remains, and the research has not presented any forecasts of the characteristics of the workforce that may emerge particularly if investment in the public services activities is wound down, what has been presented here is a detailed examination of the response of one settlement to a diverse set of economic opportunities that presented over a relatively short period of time. The research broadly supports the argument that small and isolated settlements can respond to the changing labour demands brought about by these opportunities [Huskey, 2011], but settlements should be cautious about the extent to which different parts of the workforce are mobilised. It appears that long term residents, newly arrived workers and non-resident workers are primed to engage with different sorts of opportunities. Our suggestion is that entrenching diversification potential in the settlement requires better strategies to more fully engage long term residents. Finally, the research approach may be useful for comparative analysis of diversification potential of different settlements in different sparsely populated areas, not just in Australia but around the developed and developing world.

## REFERENCES

- Argent N. Reinterpreting Core and Periphery in Australia's Mineral and Energy Resources Boom: an Innisian perspective on the Pilbara // *Australian Geographer*. 2013. № 44(3). 323-340.
- Australian Bureau of Statistics. Census of Population and Housing: Socio-Economic Indexes for Areas (SEIFA) // Australian Bureau of Statistics. 2011. № 2033.0.55.001. Available online: <http://www.abs.gov.au/ausstats/abs@.nsf/mf/2033.0.55.001>
- Carrington K., Pereira M. Assessing the Social Impacts of the Resources Boom on Rural Communities // *Rural Society*. 2011. № 21(1). 2-20.
- Carson, D.B, & Carson, D.A. (2013). Mobilising Labour in Remote 'Boom' Towns for Economic Diversification: The case of Tennant Creek, Australia. *Inner Asia Studies in the Humanities*, 2, 31-44.
- Carson D., Ensign P., Rasmussen R., Taylor A. Perspectives on 'Demography at the Edge' / D. Carson, R. Rasmussen, P. Ensign, L. Huskey, A. Taylor // *Demography at the Edge: Remote human populations in developed nations*. 2011. 3-20.
- Clemenson H. Are single industry towns diversifying? A look at fishing mining and wood-based communities // *Perspectives on Labour and Income*. 1992. № 4(1). 4.
- Gordon I. Migration in a segmented labour market // *Transactions of the Institute of British Geographers*. 1995. № 20(2). 139-155.
- Guerin P., Guerin B. Social Effects of Fly-in-Fly-out and Drive-in-Drive-out Services for Remote Indigenous Communities // *The Australian Community Psychologist*. 2009. № 21(2). 7-22.
- Huskey L. Resilience in Remote Economies: external challenges and internal economic structure // *The Journal of Contemporary Issues in Business and Government*. 2011. № 17(1). 1-12.
- O'Malley, T. Transaction Services: Drivers of Income and Diversification in Australian Functional Regions // Paper presented at the 36<sup>th</sup> Annual Conference of the Australian and New Zealand Regional Science Association International, Wollongong, Australia. 2012.
- Schmallegger D., Carson D., Tremblay P. The economic geography of remote tourism: the problem of connection seeking // *Tourism Analysis*. 2010. № 15(1). 125-137.