

**Extended abstract (1900 words)**

**International migration and income distribution in New Zealand metropolitan and non-metropolitan areas**

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New Zealanders are increasingly concerned about changes in the distribution of income. Surveys carried out prior to the 2014 and 2017 general elections ranked concerns about “income distribution” as the most important economic issue facing New Zealand. Globally, observed changes in the distribution of income in developed countries have been linked to a range of economic and socio-demographic factors (see OECD 2008, 2011 for surveys of the evidence) and such factors may be expected to matter in New Zealand as well.

One important socio-demographic factor that has the potential to affect the distribution of income is immigration. In the last few decades, New Zealand has experienced rapid growth in immigration and growing diversity in terms of the range of source countries of migrants. In 2013, about one in four of the population was born overseas, with a large proportion of recent migrants are not from the traditional source countries, i.e. they come from countries other than Western Europe, North America,

Australia and the Pacific Islands. In 2013, immigrants from England, where an immigrant is defined as someone who is foreign-born and usually resident in New Zealand, accounted for a greater share of the overseas-born population living in New Zealand (21.5%) than any other source country, however there were sizeable shares from China (8.9%) and India (6.5%) as well. The proportion of the population that is foreign born is much higher in metropolitan areas. More than 40 percent of residents of Auckland were born abroad.

This study provides evidence of the impact of immigration on the distribution of income in New Zealand, complementing existing evidence on the impact of immigration on economic variables like wages (Maani & Chen, 2012; Stillman & Maré, 2008; Tse & Maani, 2017) and house prices (Hyslop et al., 2019; Maré & Stillman, 2009). Our analysis is focused on broad migrant groups and thus do not distinguish by source countries. The paper makes two important contributions.

Firstly, we use two separate decomposition methodologies – the sub-group decomposition approach of Mookherjee and Shorrocks (1982) and an extension to the Shapley value regression-based decomposition approach pioneered in Fields and Yoo (2000) respectively – to provide comprehensive evidence on the role of immigration in the distribution of income. Our extension to the Shapley-value regression-based decomposition allows us to calculate the within-group (intra-group) and between-group (mean-group) contributions of migrant groups to inequality, accounting for other characteristics. Earlier studies in the literature that have used regression-based decompositions have focused on mean-group contributions, ignoring the within-group contributions – usually referring to the latter simply as residual inequality (see Brewer & Wren-Lewis, 2016; Gunatilaka & Chotikapanich, 2009; Kimhi & Hanuk-Taflia, 2019; Mussida & Parisi, 2018). We extend the regression approach to estimate the

mean-group and within-group contributions of migrant groups to inequality in New Zealand while controlling for age, employment status and gender.

Secondly, we take a spatial approach and compare the inequality impact of immigration in metropolitan areas with that in non-metropolitan areas. This approach is justified by the high spatial selectivity in where immigrants choose to live and the growing gap in inequality across areas documented in Alimi et al. (2016; 2018) and Karagedikli et al. (2000, 2003). Events of recent years like the vote for Brexit in the UK and the political polarisation in the USA have shown that space matters when considering changes in the income distribution. Focusing on national effects may be misleading or hide significant differences between areas. Our analysis focuses on the 40 main and secondary urban areas as defined by Statistics New Zealand<sup>1</sup>. We compare the spatial impact of immigration on the distribution of income through contrasting metropolitan areas with non-metropolitan areas. Majority of immigrants in New Zealand prefer to live in the big cities with factors like availability of job opportunities, networks, and ties driving this decision (Wang and Maani, 2014; Maré, Morten and Stillman, 2007). Thus our analysis allows us to examine the impact of immigration in big cities and elsewhere. For our purposes, metropolitan areas defined as urban areas that make up the six largest New Zealand cities (in order of size) of Auckland, Wellington, Christchurch, Hamilton, Tauranga and Dunedin. All other urban areas are considered non-metropolitan areas. Around 80 percent of the New Zealand population live in urban areas and around three quarters of this group live in the metropolitan areas. The population of rural areas (14% of population) and of minor urban areas (8%) are excluded from our analysis.

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<sup>1</sup> We use the 2013 Statistics New Zealand urban area boundaries for all periods.

Our study contributes to two strands of literature in New Zealand: on assessing spatial differences in economic and social outcomes in New Zealand (see Baxendine, Cochrane and Poot, 2005; Cochrane and Poot, 2008; Poot, 2008; McCann, 2009; Stillman, Velamuri and Aitken, 2010); and on examining the consequences of immigration on the labour market of destination areas (see Stillman & Maré, 2009).

The impact of international migration on the overall distribution of income in a destination area may be through three specific channels:

*The compositional channel*

Immigrants are typically self-selected, and the compositional difference could have implications for the overall distribution of income in their destination countries. Immigrants typically possess characteristics that differ from the New Zealand-born, for example in skill composition as well as earn different returns for these skills (Poot and Stillman, 2016). Even if migrants and New Zealand-born had the same income distribution conditional on observable characteristics, their respective contributions to overall inequality may differ depending on the relative frequencies of these characteristics in their respective populations. Compositional differences between migrants and New Zealand-born in terms of observables can have important implications for the overall distribution of income in national and regional labour markets. In New Zealand's case, the compositional effect may be important as a key objective of past and present migration policy is to attract migrants to address skill shortages. The impact of this selectivity on local inequality will depend on where most immigrants fall in the distribution of income in the destination areas – which is dependent on the skill distribution of this area and how migrants are rewarded. There is existing empirical evidence that New Zealand migrants are different from the New Zealand-born and are rewarded differently in the labour market (Stillman and Maré,

2009; Poot and Stillman, 2016; Poot and Roskrug, 2013). Although there is evidence of some convergence over time, some persistent differences remain. For example, using data from 1997 to 2007, Stillman and Maré (2009) provide evidence that around 15 years after arrival, the income difference between immigrants and New Zealand-born has halved for men and disappears entirely for women. Thus, given the pattern of difference between migrants and New Zealand-born in skill distribution as well as in returns for skills, it is expected that the compositional effect might be particularly relevant for New Zealand and this effect may vary spatially, given the selectivity in terms of places immigrants choose to locate.

#### *The immigrant-specific income distribution channel*

The distribution of income within immigrant groups itself can also affect the overall distribution of income in destination areas. Immigrants are not a homogenous group and any income differences between migrants themselves may affect the overall distribution of income in destination areas. In New Zealand, besides the targeted “Skilled Migrant category”, there is a whole range of other migrant streams. Many of these are not selective on skills such as family reunification and refugee admission schemes. Indeed, it is highly likely that the distribution of income within the migrant community is wider than among New Zealand-born. Furthermore, there is evidence that the effect of recent immigration on the labour market is mostly felt by earlier migrants, with recent and earlier migrants acting as substitutes in the labour market. For example, evidence for the US by Cortés (2008) shows that the negative impact of low skill immigration is felt mostly by earlier immigrants, with immigration lowering their wages (also confirmed by the meta-analysis by Longhi et al. (2005). Thus, depending on the size of the migrant group, immigration may affect the overall distribution of income through the distribution of income among migrants being different from that among the

New Zealand-born. Consequently, this study examines the role of changes in the migrant-specific distribution of income on the overall distribution of income.

*The general equilibrium effect of immigration on the income/wage distribution of locals.*

The general equilibrium effects of immigration on the income and/or wage distribution of locals is one of the most actively researched areas in the labour migration literature in recent decades (see, for example: Borjas, 2005; Borjas et al., 1997; Card, 1990, 2005, 2009; D'Amuri et al., 2010; Foged & Peri, 2016; Manacorda et al., 2012). Evidence on the wage impact of immigration appears inconclusive, with an abundance of positive, negative and insignificant results, but the evidence points towards the effects being quantitatively small in most cases (see Longhi et al., 2010 for a meta-analysis). New Zealand evidence from Maani, and Chen (2012), Maré and Stillman (2009), MBIE (2018) and Tse and Maani (2017) find little evidence that immigrants affect wages of native born negatively overall. Maré and Stillman (2009) find some evidence that increases in the number of high-skilled recent migrants have small negative impacts on the wages of high-skilled New Zealand-born workers, which are offset by small positive impacts on the wages of medium-skilled New Zealanders. Tse and Maani (2017) that find immigration has little impact on earnings and employment hours. Maani and Chen (2012) find no adverse wage impact from skilled immigration on native workers of similar skill but find that highly skilled immigration has a small negative wage effect on low-skilled native workers. MBIE (2018) finds some positive effect of temporary migration on earnings of New Zealanders but no effect on employment. Overall, New Zealand evidence on the impact of immigration on the distribution of income of the native born is that this impact is quantitatively small. We therefore focus in this study exclusively on the composition and immigrant-specific

distribution channels and do not explicitly account for the small effects of immigration on the income distribution of the native born.

We find that our measure of inequality (Mean Log Deviation) rose between 1986 and 2013 slightly by about 1% in all main and secondary urban areas combined but this masks a considerable spatial difference. Inequality fell in non-metropolitan areas by 11% and rose in metropolitan areas by 4%. We find that increases in the population share of immigrants have a universal inequality-increasing effect in both metropolitan and non-metropolitan areas but the effect of changes in the immigrant-specific distribution of income differs by area: it is inequality-reducing in non-metropolitan areas but inequality-increasing in metropolitan areas. Overall, there is a difference in the contribution of high skilled and medium/low skilled groups to income inequality, whether immigrants or New Zealand born. Changes to high skilled groups had inequality-increasing contributions. Thus, changes in the skill distribution of New Zealand's population are very important for changes in the distribution of income regardless of the presence of migrants.