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Economics Or Culture? Measuring Economic Thinking And Cultural Enrichment Beliefs About Immigration.

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Abstract

The present work attempts to distinguish people's economic concerns about immigration from their (anti-)diversity attitudes, and examines how these economic concerns influence attitudes towards immigrants. To do this, we develop a scale to assess economic thinking and cultural enrichment beliefs about immigration (ETCEI). Economic thinking was associated with personality and ideological traits related to viewing the world as competitive and anti-diversity attitudes. Cultural enrichment beliefs on the other hand, were associated with traits associated with a preference for equity and pro-diversity orientations. Furthermore, economic thinking was associated with greater preferences to reduce immigration for all migrant groups except economic migrants, and preferences towards ethnic groups viewed as "model minorities". Cultural enrichment beliefs on the other hand was associated with less restrictive immigration attitudes and preferences towards ethnic minority groups. A follow-up conjoint survey found that regardless of people's economic thinking and cultural enrichment beliefs, people tended to prefer highly educated newcomer migrants working in useful (e.g., healthcare) industries. Finally, economic thinking and cultural enrichment beliefs shaped how people perceive the humanity of various immigrant groups. Economic thinking about immigration was associated with greater animalistic dehumanization of family class migrants, temporary foreign workers, international students, and refugees relative to economic migrants and Canadians in general, as well as greater mechanistic dehumanization of all migrants. Cultural enrichment beliefs, on the other hand was associated with greater humanization (vs animalistic and mechanistic dehumanization) overall. These findings suggest that while there is some overlap in attitudes between those who dislike immigration for economic reasons and those who dislike immigration for cultural reasons, the two concerns are distinguishable from each other, and lead to different perceptions of immigrants.

Keywords

Immigration; Attitudes; Economic Thinking; Scale Development; Conjoint Survey; Dehumanization

Summary for Lay Audience

Attitudes refer to a collection of beliefs, feelings, and behaviors that add up to one's overall evaluation of a particular object or person. In immigration research, for example, your attitudes towards immigrants can be based on a collection of your beliefs about how immigrants affect the economy and whether you enjoy the different cultural practices and foods that they bring. In this dissertation, we focus on these two components of people's attitudes towards immigrants, which we term "economic thinking" and "cultural enrichment beliefs". We developed a survey to assess the extent to which people consider the economy in their attitudes towards immigrants and the extent to which they believe that different beliefs and practices of immigrants improve Canadian culture. We found that these two beliefs were moderately, but inversely, associated with each other—that is, the more you engaged in economic thinking, the less likely you were to think that immigrant cultural contributions were good. Not surprisingly then, we also found that those who endorsed economic thinking tended to have opposing ideological beliefs and personality traits compared to those who believed immigration enriched Canadian culture. Despite these differences however, we found that our participants, regardless of their levels of economic thinking or cultural enrichment beliefs, valued immigrants who were highly educated and who could positively contribute to the economy. Though Canadians valued the same traits among immigrants regardless of their attitudes, we also found that these attitudes shaped how people perceived immigrants more broadly. Those who engaged in economic thinking were more likely to view all immigrants, except for economic class migrants, as more similar to animals than humans, and were also more likely to view all migrants as more similar to machines, compared to Canadians in general. Those who endorse cultural enrichment beliefs, however, were more likely to humanize everyone overall.

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Chapter 1

1 Introduction

1.1 Overview

In 2017, U.S. President Donald Trump signed an executive order temporarily blocking immigrants and visa holders from several predominantly Muslim countries from entering the United States (Exec. Order No. 13,769). Though the order, colloquially known as the *Muslim Ban* or *Trump Travel Ban*, was ostensibly enacted for security reasons, it has been widely criticized in the media as xenophobic and racist in its intent (e.g., "The Racism at the Heart of Trump's Travel Ban", 2020). The widespread consensus among pro-immigration proponents was that these travel bans were racist, and many counterarguments to these travel bans invoked stories of immigrant excellence and economic contribution (Resnick, 2017). For example, in response to Trump's travel ban, many individuals shared stories under the hashtag *#ImmigrantExcellence* on Twitter, talking about their own or their parents' immigration stories as well as their academic and economic achievements.

Employing narratives of immigrant success and excellence to counter xenophobia may suggest that anti-immigrant sentiment stems in part from people's economic concerns. Thus, addressing these concerns may improve anti-immigrant attitudes. These narratives are often framed in terms of how immigrants *contribute* to the economy with their skills and hard work. And while some may say their anti-immigrant attitudes stem from concerns about the economy, or in the case of the Travel Ban, concerns about safety, these may just be socially justifiable expressions of prejudice. Existing measures of anti-immigration prejudice focus primarily on (cultural or economic) threat and competition. Items are often phrased to measure the extent to which immigrants are seen as threatening or competitive. However, people's behavior suggests that immigration can also be seen in terms of utilitarian value (i.e., immigration is good if it is good for the economy). At the government level, at least in Canada, immigration is explicitly discussed in terms of its benefits to the economy, and the economic (and cultural) contribution of immigrants.

The purpose of this dissertation is to develop complementary measures of immigration attitudes, focusing on economic thinking and contribution framing. Pro-immigration proponents turn to economic arguments to sway attitudes of those who do not support immigration. This suggests that people believe *others* take into consideration information about immigrants' economic contributions to update their attitudes. However, simply asking people if they think immigration is good or bad for the economy does not measure the degree to which people think about immigration economically as their responses can be influenced by motivated reasoning. For example, those who like immigration may generate beliefs and selectively seek out information about the economic benefit of immigrants, and those who dislike immigration may do the opposite (Dustman & Preston, 2006). As such, one goal of this dissertation is to measure the degree to which people think about immigration in terms of an economic cost-benefit analysis, rather than whether they view immigration as good or bad for the economy. Additionally, because people may be reluctant to explicitly express xenophobic attitudes, people may in turn express their prejudices in terms of economic concerns. As such, I also aim to concurrently develop a measure assessing cultural attitudes about immigration that are not framed in terms of threat and competition to minimize the effects of social desirability, and to better disentangle cultural threats from people's responses on economic thinking.

In the following sections, I discuss past research on immigration attitudes with a focus on structural theories of intergroup conflict and psychological theories of individual differences that contribute to anti-immigrant attitudes. Then, I discuss how people use narratives, and in particular, dehumanizing language to shift people's attitudes towards immigration. Afterwards, I discuss economic attitudes towards immigration, and better distinguish economic thinking about immigration, as a construct, from realistic threat theories. I end with an overview of my dissertation studies outlining the construction and validation of the economic thinking and cultural enrichment beliefs subscale, and subsequent studies examining how economic thinking is distinct from (anti) diversity related attitudes.

1.2 Past Research on Immigration

The demographic and economic changes countries experience as they develop shape people's attitudes towards immigrants. Many immigrant-receiving countries have

experienced a post-industrialized transition where their population is aging and the size of their working-age population is declining (Coleman, 2006). Because of this, the governments of these countries have often turned to immigration to bolster their economy (IRCC, 2022a). Despite immigration being used as a tool to bolster the economy, residents of immigrant-receiving nations may perceive immigrants as competition in the labour market (Binggeli, et al.,2014a; Binggeli et al., 2014b; Green, 2009; Stephan & Stephan, 2000; Zárate et al., 2004). At the same time, increased immigration also leads to immigrants accounting for much of the population growth in these countries (Coleman, 2006). When immigrant population sizes increase at rates exceeding the expectations of the receiving country's residents, people often start to feel threatened (Papademetriou & Banulescu-Bogdan, 2016), in part due to feelings that immigrants are displacing their culture (Stephan & Stephan, 2000). Given that the successful integration of immigrants is contingent on the reception of the receiving country (Esses, 2021), it is important to investigate the factors that influence anti-immigrant attitudes.

1.2.1 Realistic and Symbolic Conflict

The most prominent theories of anti-immigrant prejudice revolve around perceptions of economic and cultural threat and competition (Cornelius & Rosenblum, 2005; Esses, 2021). Within the psychological literature, two prominent theories of intergroup conflict and anti-immigrant prejudice are the integrated threat theory (Stephan & Stephan, 2000) and the unified instrumental model of group conflict (Esses et al., 2010). These theories suggest that two broad factors, realistic threat and symbolic threat, contribute to perceptions of outgroup threat.

Realistic threats stem from concerns about safety, economics, and political power (Esses et al., 2010; Stephan et al., 2016). Within the context of immigration, for example, highly skilled immigrants may be seen as economic competition for jobs (Binggeli et al., 2014a; Zárate et al., 2004) or competing for public resources like welfare and other social services (Diaz et al., 2011; Esses et al, 2010). From this perspective, outgroup threat arises from competition for, and access to, material resources, resulting in more negative attitudes towards both "highly skilled" immigrants and those that are seen as "less skilled" and reliant on government services.

Symbolic threats are threats that arise from differences between group attitudes, practices, and moral standards (Stephan et al., 2016; Esses et al., 2010). Symbolic threats are often tied to social identity processes; as people incorporate their groups into their concept of the self (Social Identity Theory; Tajfel & Turner, 1979), threats to their ingroup become personally threatening. Cultural threat and competition stem from the perceptions that immigrants may come to dominate the receiving country's culture, threatening the ingroup's dominant position in society (Esses, 2021). From this perspective, people are more likely to express anti-immigrant attitudes towards immigrants from culturally dissimilar backgrounds (Burhan & van Leeuwen, 2016; Zárate et al., 2004), and immigrants who are not seen as sufficiently assimilating to the receiving country's dominant culture (Papademetriou & Banulescu-Bogdan, 2016).

The unified instrumental model of group conflict extends the integrated threat theory, adding ideology and outgroup salience as components that feed into perceived competition (Esses et al., 2010). The unified instrumental model of group conflict suggests that both ideologies (which are discussed in greater detail in section 1.2.3) and situational factors mutually reinforce each other initiating the perception of group conflict and competition. For example, being raised in punitive environments may lead to viewing the world as more threatening (Duckitt, 2001). Geopolitical conflicts displace individuals, resulting in a sudden increase in migrants seeking asylum. The sudden increase in migration, combined with concerns about security, and beliefs about the government's ability to control the border all feed into people's perceptions of threat and competition (Esses, 2021). Though these situational and ideological factors lead to perceived competition with outgroups, these targets do not have to be relevant—as is the case with politicians taking advantage of people's concerns over security to scapegoat asylum seekers and immigrants for perceived increases in crime (Golash-Boza, 2009).

Once an outgroup has been identified as a source of competition, various cognitive, affective, and motivational reactions are activated to reduce this competition. Specifically, the types of reactions that manifest should be *instrumental* in achieving specific goals to reduce threat and competition (Esses et al., 2010). For example, if people have concerns about security and safety, they should show greater prejudice towards asylum seekers and refugees (e.g., Hercowitz-Amir & Raijman, 2018; Suhnan et al., 2012) because these

individuals come from regions of conflict. However, if their social identities are threatened through cultural competition, these individuals may become less supportive of immigrants maintaining their heritage culture (e.g., Papademetriou & Banulescu-Bogdan, 2016). Likewise, concerns about immigrants using more resources than they contribute should lead to preferences for more skilled migrants (e.g., Green, 2009), while concerns about job competition should lead to preferences against skilled migrants (e.g., Zárate et al., 2004).

1.2.2 Immigrant Population Size and Perceptions of Threat and Competition

The relationship between immigrant population size and anti-immigrant prejudice is complex. While some research has found that immigrant population size is associated with perceived threat and competition (Pettigrew et al., 2010; Strabac, 2011), others found that perceived, not absolute, population size (Strabac, 2011) or the rate of immigrant population growth (Papademetriou & Banulescu-Bogdan, 2016) is what predicts anti-immigrant prejudice.

Whether immigrant population size, and related measures, are used as proxies for economic or cultural competition is also highly debated in literature. Schneider (2008), for example, found that the proportion of non-Western immigrants, and not the proportion of "low skilled" immigrants, predicted perceptions of threat, contrary to past research that conceptualized immigrant population size as a proxy for economic competition. Feelings of threat due to immigrant population size can also stem from both politicized rhetoric about immigration, and concerns that the number of immigrants exceed the country's capacity for integration, and beliefs that the government is not able to control the flow of migration (Esses, 2021). These findings suggest that without measuring direct psychological constructs, immigration population size can capture feelings of threat in a variety of domains from economic or cultural reasons, polarized attitudes, and security concerns (Schneider, 2009; Esses, 2021)

Green (2009) provides further evidence that concerns about immigrant population can shift depending on national context. Specifically, Green (2009) examined how economic condition and threat affected preferences for acquired and ascribed immigration criteria. Acquired criteria refer to traits that help facilitate adaptation to the host country such as

work skills, individual competencies, and sharing core values. Preferences *against* such criteria would indicate feelings of realistic threat, as immigrants who adapt well to the host society are seen as economically competitive (Binggeli et al., 2014a; Zárate et al., 2004). Ascribed criteria on the other hand refer to intrinsic qualities based on category membership such as religion, country of origin and, by proxy, race. Preferences *for* ascribed criteria suggest that the threats are symbolic in nature, as people are showing preferences for (vs against) culturally similar (vs dissimilar) others (Burhan & Leeuwen, 2016; Zárate et al., 2004).

Green (2009) found that perceived threat predicted support for limiting immigration regardless of criteria, suggesting that threat was both realistic and symbolic in nature. Controlling for threat, Green (2009) found that individuals from higher Gross Domestic Product (GDP) countries were more likely to support acquired criteria for immigration, while individuals from lower GDP countries preferred immigration based on ascribed criteria. While it makes sense that residents from economically worse-off countries would not want to select for "economically competitive" immigrants based on acquired criteria, it is not immediately clear why they show a preference for immigrants selected on symbolically similar, ascribed traits. Past research has shown that there is a weaker link between immigrant economic status and prejudice in lower-income European countries (Kunovich, 2004). Because access to material resources is limited, people in lower-income countries may define their group position more in terms of symbolic, rather than economic, conditions. Thus, there is stronger prejudice against symbolically dissimilar immigrants (i.e., those lacking in ascribed traits) because their increased population size is seen as a bigger threat to group position than that of economically well-off immigrants.

Another factor that influences whether local populations experience feelings of threat due to increased immigration are how political elites react to immigration. The unified instrumental model of group conflict, for example, suggests that both ideologies and situational factors interact to make outgroups salient, leading to perceived competition and discrimination towards these groups. The politicized places hypothesis (Hopkins, 2010) also comes to similar conclusions, suggesting that local conditions, such as rapid increases in immigration, combined with national conditions, such as politicized national rhetoric, combine to create feelings of threat towards immigration. Across multiple datasets, Hopkins (2010) found support for this hypothesis, finding that local politics became more hostile

towards immigrants when communities were experiencing an increase in immigration, combined with hostile national political rhetoric.

One of the factors that lead to the politicization of immigration stems from concerns about political power. There is a persistent stereotype that non-White individuals tend to be more liberal (Brandt et al. 2014). Thus, if the population of non-White individuals is a threat to group status, then White conservatives should be particularly threatened by racial demographic shift because of threats to both symbolic group position, and realistic threats to political power. Furthermore, conflict theories like the unified instrumental model of group conflict (Esses et al., 2010) suggest that these threats should be followed by discrimination that is *instrumental* to the group's goal—in this case reducing the voting power of non-White individuals. Consistent with these propositions, political ideology has been found to moderate group status threat such that White conservatives are more threatened by racial demographic shift compared to White liberals (Brown et al., 2022). In line with the instrumental model of group conflict, conservative politicians have both (i) expressed desire to reduce immigration because of its effects on their political power (Subramanya, 2021), and (ii) used fears of White replacement to bolster support for conservative agendas (Milligan, 2022), as racial demographic shift leads to conservative shifts in attitude (Lucassen & Lubbers, 2011).

Taken together, these studies suggest that feelings of realistic and symbolic threat to increased immigration is often contextual. Though economic conditions can influence the types of immigrants people prefer (Green, 2009), feelings of threat from increased immigration coincide with political rhetoric that foment such reactions (Gaucher et al., 2018; Kende et al., 2022; Hopkins, 2010). While politicized rhetoric, in concert with increased immigration, can lead to feelings of threat (Hopkins, 2010), other research has found that pro-immigrant national policies and rhetoric can also mitigate these threats. For example, in Canada, the 2015 federal election brought a shift in governance from the more anti-immigrant Conservative Party under Stephen Harper to the more pro-immigrant Liberal Party under Justin Trudeau. This shift in national politics followed shifts in national attitudes, which became more welcoming to immigrants overall (Gaucher et al., 2015). Additionally, an analysis of surveys of 140,000 participants across 66 different countries

found that people's attitudes were more positive in countries with inclusive immigration policies (Kende et al., 2022).

1.2.3 Individual Differences

As alluded to earlier in the unified instrumental model of group conflict, in addition to situational factors that contribute to perceptions of threat and competition, various individual difference variables feed into these perceptions as well. Within the context of social psychological research, two individual difference variables have consistently been found to be associated with prejudice across various domains. The first, right-wing authoritarianism is characterized by submission to authority, aggression towards sanctioned targets, and strong adherence to social conventions (Altemeyer, 1981). Mirroring situational factors that affect perceptions of symbolic threat and competition, those high in this trait tend to express prejudice towards those who are culturally dissimilar (Bizumic & Duckitt, 2018; Craig & Richeson, 2014a; Duckitt, 2006. The second, social dominance orientation, refers to individual differences in preference for group hierarchy, and is associated with perceiving the world as competitive and with prejudice against groups that threaten status and hierarchy (Pratto et al., 1994). Those who are higher in social dominance orientation tend to view immigration in terms of a zero-sum game—that is, that immigrants are competing with non-immigrant residents for scarce economic resources and power (Duckitt, 2006; Esses et al., 2001). In addition, those high in social dominance orientation also tend to believe that groups should be organized hierarchically, and generally hold negative attitudes towards those in disadvantaged social positions (Duckitt & Sibley, 2010).

How do people come to develop psychological traits like right-wing authoritarianism and social dominance orientation? The Dual Process Cognitive-Motivational Theory (Duckitt, 2001) suggests that early childhood socialization predisposes people to developing personality traits, world views, and motivational goals that lead to these ideological predispositions. For example, those who are socialized in more punitive environments tend to view the world as more dangerous, and subsequently are motivated by a desire for social control and develop authoritarian personality traits. In contrast, those who are socialized in less affectionate environments tend to view the world as more competitive, and subsequently

are motivated by a desire for superiority and dominance (Duckitt, 2001; Duckitt, 2006; Sibley & Duckitt, 2008).

In addition to ideological predispositions, differences in how people define national identity, and differences in national attachment styles predicts anti-immigrant prejudice (see Esses, 2021). For example, people can take a nativist approach, where national identity is defined in terms of country of birth and shared ethnic identity, or a civic approach, where national identity is defined in terms of personal commitment to a country's laws and institutions, and feelings of belonging (Esses, 2021). Compared to civic approaches to national identity, those who define identity in terms of nativism tend to have more negative attitudes towards immigrants (Esses, 2021). For example, an international survey across 31 countries found that the link between national identification and prejudice was stronger among those who defined national identity in terms of factors associated with culture and ethnic identity, like language, versus citizenship (Pehrson et al., 2009).

In addition to how people define national identity, different forms of national attachment can also influence anti-immigrant prejudice (Esses, 2021). For example, nationalism refers to the extent to which people believe their country is superior to and should dominate other countries (Kosterman & Feshbach, 1989), and has often been associated with anti-immigrant prejudice (Esses, 2021). Nationalism is independent of feelings of threat and competition. While cultural similarity and assimilation tends to attenuate feelings of cultural threat in general (Zárate et al., 2004), those high in nationalism tend to dislike foreigners regardless of cultural similarity (Burhan & van Leeuwen, 2016), likely because of their feelings of superiority to people from other countries. A second form of national attachment, known as patriotism, refers to positive feelings towards one's country, and is not tied to social comparisons with other nations (Kosterman & Feshbach, 1989). Though some research suggests that patriotism is associated with more positive attitudes towards immigrants (e.g., Pryce, 2018), these associations are contingent on the forms of patriotism people experience (Esses, 2021). For example, people may love their country to the point that they do not question their country or its policies—a form of patriotism known as blind patriotism. For others, their love for their country may manifest in a willingness to criticize it in the hopes of bettering the nation—a form of patriotism known as constructive patriotism. Constructive patriotism is typically the form of patriotism

associated with more positive attitudes towards immigrants (Ariely, 2011; Willis-Esqueda et al., 2016), while blind patriotism, like nationalism, is associated with more anti-immigrant attitudes (Willis-Esqueda et al., 2016).

1.2.4 Dehumanization and Anti-Immigrant Attitudes

Dehumanization occurs when an individual or a group of people are denied some or all aspects of humanity (Kteily & Landry, 2022). Though there are many aspects of humanity that people can be selectively ascribed or denied (Kteily & Landry, 2022), these traits tend to fall into two broad dimensions (Gray et al., 2007; Haslam & Loughlan, 2014; Li et al., 2014). The first dimension focuses on characteristics that are seen as uniquely human, such as rationality, sensibility, and morality. The second dimension focuses on characteristics that, while can be found in non-human animals, tend to be seen as essential to human experience such as agency, interpersonal warmth, and cognitive openness.

Each dimension leads to unique aspects of dehumanization. For example, people are perceived to be closer to animals when they are denied uniquely human traits (Bai & Zhao, 2021; Loughnan & Haslam, 2007; Martínez et al., 2012). On the other hand, when people are perceived to be less warm and are denied traits essential to human nature, they are perceived to be closer to objects, and are mechanistically dehumanized (Bai & Zhao, 2021; Loughnan & Haslam, 2007; Martínez et al., 2012).

In the context of anti-immigration attitudes, dehumanization is not merely an extreme form of prejudice, but is also used as a vehicle to shift public opinion. For example, media narratives often depict undocumented migrants and refugees as vermin who spread disease (Esses, et al., 2013; Marshall & Shapiro, 2018). Not only do these media portrayals lead to greater feelings of contempt, disgust, and overall more negative attitudes towards immigrants (Esses et al., 2013; Marshall & Shapiro, 2018), they also lead to greater support for restrictive immigration policies and for for-profit immigration detention centres (Marshall & Shapiro, 2018; McCubbins & Ramirez, 2021).

Part of the motivation to employ dehumanizing language against immigrants may stem from group-protective motives. As noted earlier in this chapter, increased demographic diversity tends to be viewed as symbolically threatening by majority groups (Blumer, 1958;

Brown et al., 2022), with immigration being seen as particularly threatening by conservatives and conservative media (Medianu et al., 2015; Milligan, 2022; Subramanya, 2021). Indeed, a computational analysis of over 200,000 U.S. congressional speeches and 5000 presidential speeches from the 1800s to the present era has found that attitudes towards immigration have diverged along political lines over time (Card et al., 2022). While Democrats became more positive when discussing immigration, emphasizing benefits to the country, Republicans remained consistently negative, being more likely to use implicitly dehumanizing language against immigrants. In line with the idea that demographic diversity threatens White conservatives' group position, Republicans were more likely to employ dehumanizing language towards Chinese and Mexican, compared to European, immigrants (Card et al., 2022). Given that dehumanizing language bolsters support for more restrictive immigration policies, the selective employment of this language towards non-European migrants supports the idea that dehumanization works to support the status quo and mitigate symbolic threats to power.

1.3 Economic Attitudes Towards Immigrants

Literature on anti-immigrant attitudes often revolve around realistic and symbolic conflicts. Perceptions of threat can stem from factors at both the group level (e.g., economic condition, increased immigration, national rhetoric), and at the individual level (e.g., personality, national attachment, and personal ideology). This research, however, does not necessarily account for the potential effects of positive framing of immigration by governments, particularly around economic contribution. While conservative politicians, particularly in the United States, tend to have more negative attitudes towards immigration, political discourse about immigration has generally become more positive overall in the US (Card et al., 2022), with immigration framed as enriching the country and contributing to the economy (Card et al., 2022; IRCC, 2022a). Indeed, many countries have turned towards immigration to address economic shortfalls. Economic migrants in Canada, for example, make up 62% of permanent residents accepted in 2021 (IRCC, 2022a). Immigration streams have been developed specifically to address regional economic issues, and immigrants have been viewed as a potential means to revitalize rural communities, as Canadian-born residents increasingly reside in cities (Esses, McRae, et al., 2021). Despite immigration being framed as positive to the host country, immigration policies themselves are not necessarily more pro-

immigrant. For example, neoliberal changes to Canadian immigration policy under the Harper government shifted focus away from immigrant families and towards economic migration (Root et al., 2014). These policies, in turn, expect immigrants to be more self-sufficient to not burden the Canadian economy, creating a distinction between "good immigrants" who contribute to the economy, and "bad immigrants" who are a drain on the country's resources (Root et al., 2014). Though these policies have focused on the self-sufficiency of immigrants, recent messaging from the federal government has become more positive, subsequently shifting Canadian's attitudes in the same direction (Gaucher et al., 2018). Even in the midst of Canada's economic downturn during the COVID-19 pandemic, Canadians' attitudes towards immigrants generally remained positive (Neuman, 2022).

According to theories of realistic threat and competition, immigrants can be seen as competition in two ways. First, the labour market perspective suggests that non-immigrant residents should express negative attitudes towards immigrants who are perceived to be *similar* in skill level because immigrants are more likely to be perceived as job competition (Hainmueller & Hiscox, 2010; Zárate et al., 2004). The fiscal burden perspective suggests that wealthy non-immigrant residents should express negative attitudes towards immigrants perceived to be "low skilled" because they are seen as an economic burden to society (Hainmueller & Hiscox, 2010). While there is evidence for both these perspectives (e.g., Helbling & Kriesi, 2014; Zárate et al., 2004), people tend to have a preference for immigrants they perceive to be higher skilled compared to those they perceive to be lower skilled (Esses, 2021; Hainmueller & Hiscox, 2010). Using a probabilistic sample of U.S. participants, Hainmueller and Hiscox (2010) examined both the labour market and fiscal burden hypotheses—that people would have more negative attitudes towards similarly skilled immigrants, and that wealthier individuals would have more negative attitudes towards low (vs high) skilled immigrants, respectively. Contrary to these hypotheses, Hainmueller and Hiscox (2010) found that their participants preferred high, versus low, skilled immigrants regardless of their own skill level or income. They suggest that these patterns of results indicate that people's attitudes about immigration are not necessarily about self-interest, but also encompass non-economic concerns like ethnocentrism, or concerns about how the economy, as a whole, is affected by immigration (Hainmueller & Hiscox, 2010).

1.4 Present Research

Existing measures of attitudes towards immigrants are predominantly framed negatively (e.g., Varela et al., 2013), or in terms of competition (e.g., Esses et al., 2001), or data are analyzed from large surveys where researchers may aggregate items on an ad-hoc basis (e.g., European Social Survey, 2018). However, people spontaneously talk about immigrant contribution and success when trying to counter xenophobic rhetoric (e.g., Resnick, 2017), suggesting they believe that others value immigration in terms of economic contribution. Additionally, pro-immigration rhetoric from the government revolves around immigrants' abilities to contribute to the country's economy and how the country is enriched by immigration (Card et al., 2022; Fiřtová, 2021; IRCC, 2022a). Indeed, research on attitudes towards high versus low skilled immigrants suggest that people's attitudes about immigration are not merely about self-interest, but also the economic impact of immigration more broadly (Hainmueller & Hiscox, 2010). Because of this, the purpose of this dissertation is to develop a complementary scale of attitudes towards immigration, focusing on the development of a scale that assesses economic thinking about immigration that does not necessarily assign a value to immigration itself. For example, past research using the European Social Survey found that whether Europeans viewed immigration as good or bad for the economy was closely tied with whether or not they preferred living in an ethnically homogenous society (Tremewan, 2009). At the same time, those who are pro-immigration also spontaneously discuss immigrant achievement and the economic benefits of migration (Lees et al., 2021; Resnick, 2017). Tremewan (2009) suggests that people's economic beliefs about immigration is largely influenced by motivated reasoning—that is, people like or dislike immigration and then find reasons, such as the economy, to justify it. Another alternative is explicit xenophobia, especially about culture, is seen as less acceptable. As such, people may express their xenophobic dislike for immigration in more socially acceptable ways. To get around these issues of motivated reasoning and social desirability, I focus on the process of economic thinking (e.g., "immigration is good if it is good for the economy" versus "immigration is good/bad for the economy"), rather than asking people if they think immigration is good or bad for the economy.

In Chapter 2, I outline the initial development of the economic thinking and cultural enrichment beliefs about immigration scale. Though the focus of this dissertation is on

economic thinking, I also developed a measure of immigration attitudes tapping into cultural concerns about immigration for two reasons. First, I wanted to be able to compare economic thinking with cultural concerns about immigration. Second, while there are measures of cultural or symbolic threat, many of these measures are negatively framed and people may be less likely to agree to explicitly anti-diversity measures. In Chapter 3, I review the validation of these measures, examining both the ideological and personality correlates of economic thinking and cultural enrichment beliefs, along with how these two measures predict preferences for different immigrant and ethnic groups. I explore how these attitudes influence preferences for immigrants further in Chapter 4 by examining how economic thinking and cultural enrichment beliefs moderates preferences for different immigrants as a function of various human capital characteristics. Lastly, while research on the dehumanization of immigrants has focused primarily on animalistic dehumanization (Esses, Medianu, & Sutter, 2021), workers tend to be dehumanized in more mechanistic terms in organizational contexts. Given that economic thinking about immigration focuses on immigrants in terms of their work skill and economic benefit, Chapter 5 examines how different types of immigrants are dehumanized and the association between economic thinking and cultural enrichment beliefs on different forms of dehumanization. A flowchart summarizing the different waves of data collection, and the studies each dataset is associated with can be found in Figure 1.1.

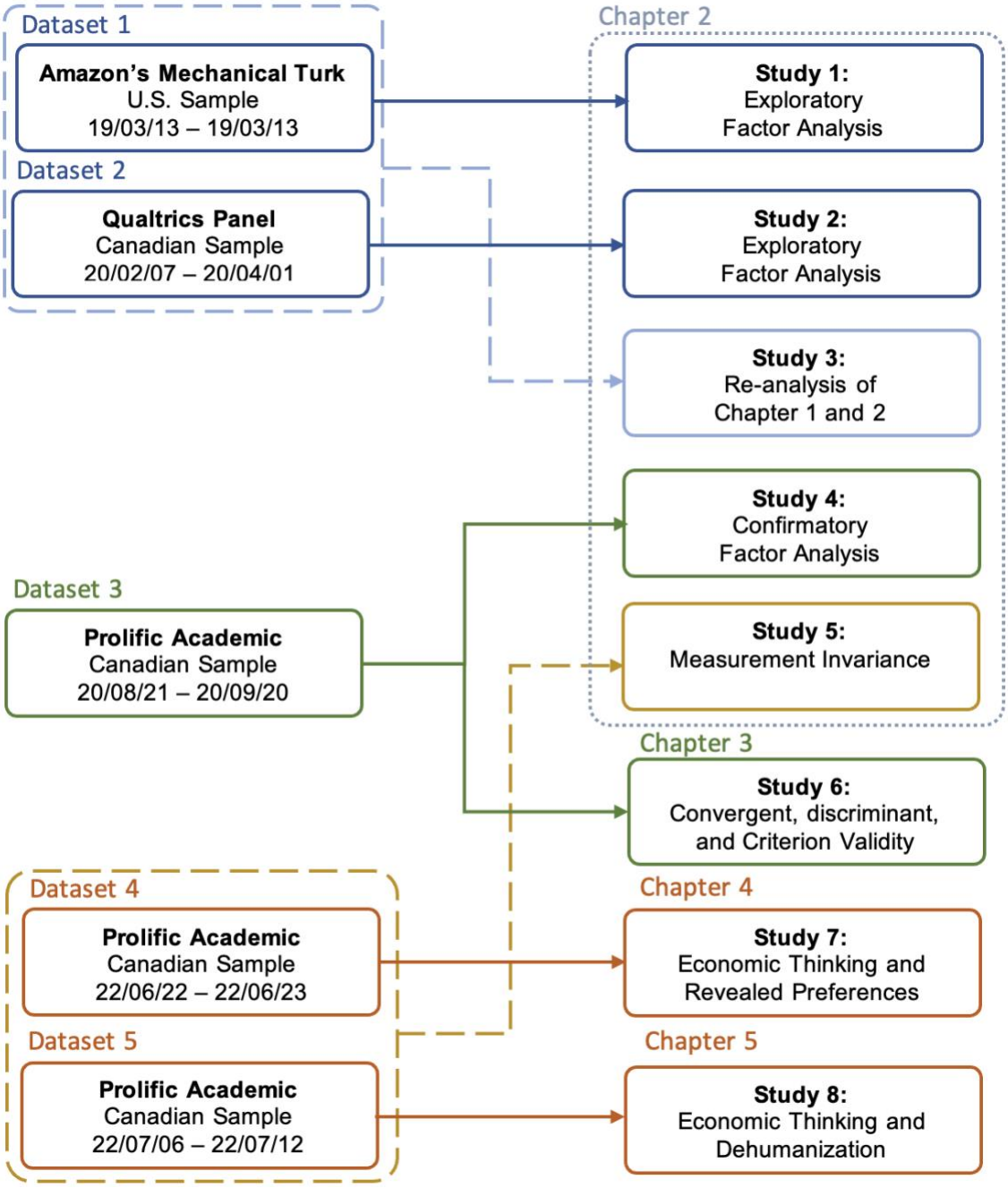

Figure 1.1 Flowchart Summarizing the Datasets and Studies Across Chapters

Chapter 2

2 Scale Development and Factor Structure

2.1 Introduction

Though there is a strong body of literature on economic and cultural / social identity factors influencing people's attitudes towards immigration, this research has typically focused on feelings of threat and perceived competition (see Ceobanu & Escandell, 2010 and Esses 2021 for review). Immigration policy, however, often frames immigration in terms of both the economic benefit of immigrants and their ability to enrich the country through cultural diversity (IRCC, 2022a; Luthra & Platt, 2021). This focus on *contribution* is also reflected in changes in how some politicians have talked about immigration over time, constructing a positive image of immigrants as hard working and contributing to the economy (Card et al., 2022; Savaş et al., 2021). A country's laws, policies, and government-sanctioned ideology influence the attitudes of its citizens. In the context of immigration, we see evidence for this indirectly in people's stereotypes of immigrants where certain groups of migrants are seen as "hard working" (Savaş et al., 2021), and more directly through a longitudinal study where changes in how Canada's government communicated about immigration seemed to directly affect stereotype content (Gaucher et al., 2018).

Despite evidence that people think about immigration in terms of economic benefit and cultural enrichment, current research may primarily focus on threat and competition due to the tools at researchers' disposal. Many cross-national studies of immigration attitudes rely on secondary data from large surveys and are limited by the questions included in each survey wave. For example, the European Social Survey, a biennial survey assessing socio-political attitudes across various European countries, typically has a core set of questions assessing attitudes towards immigration (European Social Survey, 2018). These questions range from assessing preferences for immigrants based on the type of country they come from (rich or poor European / non-European countries), cultural or racial background, and single-item questions assessing whether people believe their country's economy or culture would be improved by immigration. Though there are questions that ostensibly distinguish between culture and economic concerns about immigration, people's beliefs about the impact of immigration on the economy tends to be more negative than what would be

suggested by empirical evidence (Tremewan, 2009). This is in part, because of things like motivated reasoning where people may dislike immigration for other reasons (e.g., dislike culturally different others) and then justify their beliefs after-the-fact (Tremewan, 2009). Thus, it is unclear, for example, whether responses to the single-item measure "*Would you say it is generally bad or good for [country]'s economy that people come to live here from other countries*" reflect economic thinking, racial animus, or a general dislike of immigration.

Another issue with these single-item questions is that the response scale places a value judgment on immigration as *good* or *bad*, rather than measuring economic thinking (e.g., prioritizing immigrants who *can* be good for the economy). This is particularly important given that people tend to spontaneously revert to economic success narratives when countering anti-immigrant rhetoric (e.g., Resnick, 2017, Tranjan, 2019). This discourse suggests that the pro-immigration side believes that the anti-immigration side engages in economic thinking about immigration, and thus can change their stance with economic arguments and success narratives. At the same time, those who hold negative attitudes towards immigration may understand that expressing explicit xenophobia is non-normative. The justification-suppression model of prejudice (Crandall & Eshleman 2003) suggests expressions of prejudice are constrained by social norms and genuine expressions are rare. Instead, people may express prejudice when there are justifications that release these prejudices—such as concerns for the economy. In this scenario, cultural concerns and symbolic threats would then be associated with assessments of how immigration impacts the economy, because economic concern allows for these prejudices to manifest. Because these large-scale surveys are made for the social sciences more broadly, there are often no psychological measures to examine the underlying psychological constructs that influence these responses.

Though there are psychological measures developed specifically to assess people's immigration attitudes, these measures are often framed negatively, or in terms of perceived competition. Thus, the purpose of this project is to complement existing literature by developing a scale assessing both economic thinking about immigration and reframing cultural competition into cultural enrichment. Study 1 – 3 detail the initial development of the attitudes scale. Study 4 cross-validates the factor structure in a novel sample. Finally,

Study 5 examines measurement invariance across groups—that is, whether the scale measures the same underlying constructs across populations.

2.2 Study 1: Exploratory Factor Analysis (U.S. Sample)

This study consisted of an earlier version of this project, where we attempted to construct a more comprehensive scale of people's attitudes towards immigration. In addition to assessing economic thinking and beliefs about cultural enrichment, we also attempted to develop items assessing immigration attitudes as they related to the issue of legality and broader values related to migration such as freedom of movement.

2.2.1 Item Generation

An initial pool of 48 items were generated by adapting questions from various sources including the zero-sum beliefs scale (Esses et al., 2001), items from the immigration section of the seventh cycle of the European Social Survey (European Social Survey, 2014), and from relevant content knowledge. A wide breadth of topics was initially included in the item pool. For example, various items were written to assess economic thinking with regards to immigration (e.g., *"Immigration is good as long as it benefits the economy*) and how immigration affects culture (e.g., *"Immigrants bring in new foods, ideas, and customs that generally enriches life in [host country]"*). Other items assessed how people thought about immigration in terms of legal forms of immigration (e.g., *"Immigration is okay as long as it is done legally"*) and government services (e.g., *"The government should limit the number of immigrants from poorer countries because they tend to take advantage of our social services"*). A few items were also added to tap into values related to immigration such as free movement (e.g., *"There should be fewer restrictions on who can cross the border*) and common humanity (e.g., *"I think it would be better if people considered themselves to be citizens of the world rather than citizens of specific countries*).

2.2.2 Participants and Procedure

Sample size was determined following general guidelines of a 5:1 to 10:1 ratio of participants per scale item (Gorsuch, 1983, Everitt, 1978). N = 510 American participants (reflecting over a 10:1 participant-to-item ratio) were recruited from Amazon's Mechanical Turk using TurkPrime's (now CloudResearch) toolkit to target participants currently residing in the United States. The sample (206 women, 309 men, and 3 another gender identity)

consisted of participants between the ages of 19 to 86 years of age. Approximately 76% of the participants identified as White and 95% identified as being born in the United States. Participants completed the online survey on their computers or their mobile devices at their leisure and were compensated $1.20 USD for 15 minutes of their time, though the survey took the majority of participants less than 10 minutes to complete.

2.2.3 Results and Discussion

2.2.3.1 Data Quality Check

At the time the survey was fielded, there were increasing concerns regarding automated survey responses on Amazon's Mechanical Turk (i.e., *bots*, Chmielewski & Kucker, 2020). These bot responses were characterized by IP addresses associated with certain Internet Service Providers and Virtual Private Servers (Dennis, Goodson, & Pearson, 2018), as well as nonsensical responses to open-ended questions with repeated GPS coordinates (Bai, 2018).

These issues were addressed in two ways. First, we examined how long it took participants to complete the main portion of the survey and removed participants who finished with questionable response times. Given the length of the items and the complexity of the issues, our inclusion criteria was conservative, removing participants who took less than 5s per item on average. We also analyzed participants' data to see if their response patterns matched that of *bot* responses using the Suspicious IP Online Flagging Tool (Prims, Sisso, & Bai, 2018) and Suspicious Response Detector (Prims & Motyl, 2018). The final sample after screening consisted of $N = 310$ participants (134 female, 174 male, 2 another identity). This allows for a 6:1 participant to item ratio, exceeding the suggested requirements for exploratory factor analysis (Howard, 2016). Participants ranged from 19 to 86 years of age ($M = 40.0$, $SD = 14.1$) and were predominantly White (80%) and born in the United States (92%).

2.2.4 Exploratory Factor Analysis

Inspection of the scree plot (Figure 2.1) and parallel analysis suggested a 4-factor solution. A minimum residual exploratory factor analysis with an oblique (oblimin) rotation was conducted using the GPArotation (Bernaards & Jennrich, 2005) and psych (Revelle,

2022) packages in R. Compared to an orthogonal factor rotation, oblique rotation allows for correlations between factors, which is expected given that all items are assessing immigration attitudes more broadly. In line with current EFA practices, items were retained in a factor if they had a factor loading of .40 or higher and no cross-loading greater than .30 (Howard, 2016).

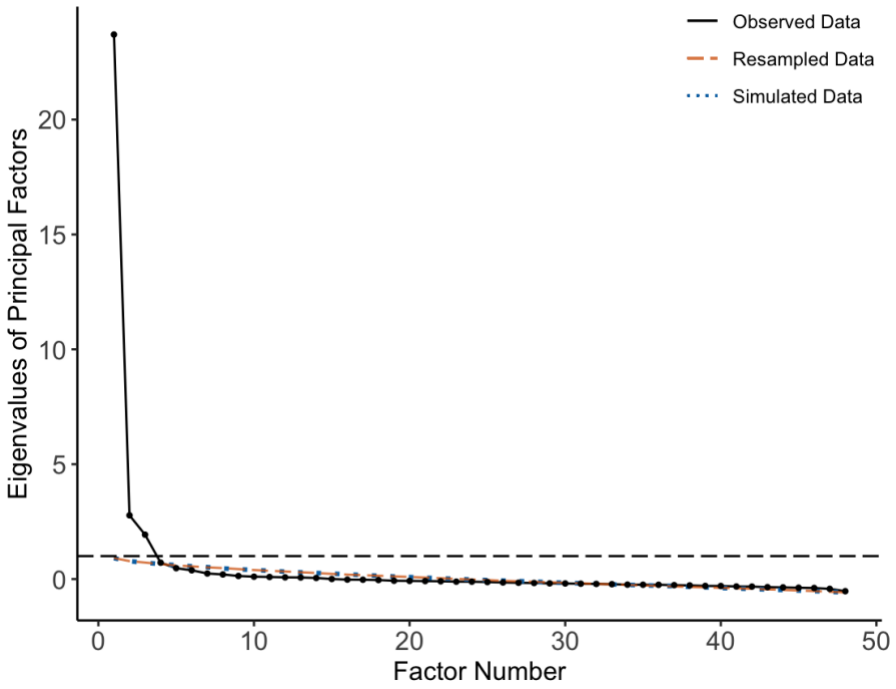

Figure 2.1 Scree Plot for the U.S. Mturk Exploratory Factor Analysis
Notes. The blue dotted line and orange dashed line represent eigenvalues generated from parallel analysis. Examining where eigenvalues for the observed data is greater than the simulated and resampled data suggests a 4-factor solution.

The first factor, labelled *ingroup threat*, consisted of items that assessed the extent to which participants thought that immigration would be detrimental to one's country and opens itself up to problems from other nations (e.g., *"Having high levels of immigration means that the United States opens itself up to problems from other countries"*). The second factor, labelled, *cultural enrichment attitudes* focused on how the country benefits or is improved by the cultural diversity from immigration (e.g., *"Immigrants bring in new foods, ideas, and customs that generally enriches life in The United States.*"). Though *ingroup threat* and *cultural enrichment attitudes* were inversely correlated, the cultural enrichment items have low cross-loadings with *ingroup threat* (–0.10 to –0.20) suggesting they are distinct attitudes. The third factor, labelled *free movement*,

consisted of items assessing the extent to which people thought there should be fewer restrictions on crossing borders and where people live (e.g., *"There should be fewer restrictions on who can cross the border"*). Items about undocumented immigrants also loaded on this factor despite being written to be about the economy (e.g., *"Undocumented immigrants should be able to stay in the United States because they do work other Americans don't want to do*"). This suggests that attitudes about undocumented immigrants may be more tied to values of free movement than economic considerations. The last factor, *economic thinking*, consisted of items assessing people's economic thinking about migration. Items on this factor consisted of assessing preference for immigrants most likely to benefit the economy and who will not be dependent on social supports (e.g., *"Immigrants who come to the United States should have work skills that the country needs.*").

Table 2.1 Descriptive Statistics And Factor Loadings For The 4-Factor Model (U.S. Sample)

Item	M	SD	F1	F2	F3	F4
Having high levels of immigration means that the United States opens itself up to problems from other countries.	3.93	1.86	**0.81**	0.05	-0.12	-0.03
Religious practices of immigrants tend to have a negative effect on American society.	2.88	1.69	**0.79**	-0.13	0.12	-0.03
Having people from many different cultures in one country makes it difficult to form a cohesive national identity.	3.26	1.83	**0.75**	-0.20	0.04	-0.09
Immigrants who come and follow their own traditions rather than assimilate tend to have a negative impact on American culture.	3.50	1.88	**0.74**	-0.06	0.02	0.12
The core values of immigrants tend to be different from the core values of Americans.	3.65	1.74	**0.73**	0.03	0.03	0.09
High levels of immigration makes it hard for the United States to focus on local issues.	3.56	1.93	**0.71**	-0.06	-0.10	0.08
Having a lot of immigrants in the country tends to have a negative effect on America's political climate.	3.29	1.83	**0.68**	-0.20	-0.07	-0.03
Even if their values and customs are not in conflict with those of this country, immigrants should still follow American customs.	4.19	1.74	**0.59**	0.11	-0.12	0.14
If new immigrants are taking jobs from Americans, then the government should put limits on immigration.	4.24	1.87	**0.58**	0.05	-0.23	0.18
Giving preferential treatment to family members of existing immigrants typically hurts the economy more than it helps.	3.62	1.68	**0.58**	-0.13	-0.02	0.12

Item	M	SD	F1	F2	F3	F4
It is okay for the United States to limit immigration from war-torn countries for security reasons.	4.60	1.81	**0.49**	0.07	-0.34	0.19
The government should restrict birthright citizenship because it takes advantage of the country's immigration system.	3.62	2.09	**0.49**	-0.12	-0.19	0.15
If immigrants from certain countries use more resources than they contribute, it is okay for the American government to limit immigration from those countries.	4.23	1.88	**0.46**	-0.05	-0.20	0.31
The government should limit the number of immigrants from poorer countries because they tend to take advantage of our social services.	3.42	1.89	**0.46**	-0.22	-0.05	0.32
I think it is good for the United States to have people from many different cultures in one community.	5.43	1.48	-0.10	**0.80**	0.04	-0.05
Immigrants bring in new foods, ideas, and customs that generally enriches life in The United States.	5.59	1.43	-0.16	**0.79**	0.01	-0.06
In general, it is beneficial to be able to interact with immigrants who come from many different backgrounds.	5.51	1.43	-0.11	**0.75**	-0.01	-0.10
One benefit of immigration is that it exposes Americans to ideas and values that are different than their own.	5.60	1.48	-0.08	**0.75**	0.08	0.01
Having people from other countries coming to live together is generally good.	5.28	1.48	-0.07	**0.74**	0.15	-0.03
Allowing people from other countries to live and work in the United States improves the country as a whole.	5.28	1.59	-0.05	**0.73**	0.17	-0.11
Immigrants typically improve The United States' cultural atmosphere.	5.13	1.58	-0.19	**0.65**	0.16	-0.03
The United States absorbing values and practices from other countries through immigration is generally a good thing.	5.16	1.51	-0.15	**0.64**	0.15	-0.10
People should be allowed to choose what country to live in with very little restriction.	3.76	1.87	0.04	0.28	**0.66**	-0.03
Undocumented immigrants should be able to stay in the United States because they do work other Americans don't want to do.	3.68	1.94	-0.25	0.08	**0.66**	0.07
It is better if there are fewer laws that restrict people's ability to move between countries.	3.76	1.85	0.04	0.19	**0.66**	-0.11
There should be fewer restrictions on who can cross the border.	3.37	1.85	-0.12	0.14	**0.64**	-0.04
The government should help everyone living in the United States regardless of whether they came here with proper documentation.	3.91	1.97	0.02	0.26	**0.58**	-0.25

Item	M	SD	F1	F2	F3	F4
There should be strict background checks for new immigrants trying to enter the United States.	5.55	1.41	0.34	0.18	**-0.56**	0.07
I think it would be better if people considered themselves to be citizens of the world rather than citizens of specific countries.	4.30	1.99	0.03	0.32	**0.55**	0.03
Immigrants who do not enter the United States through the proper channels should not have the same access to social support services as American citizens.	4.92	1.90	0.17	-0.03	**-0.54**	0.24
The government should prioritize allowing new immigrants into the United States based on their ability to contribute to the economy, rather than prioritizing family members of existing immigrants.	4.15	1.71	0.06	-0.12	-0.02	**0.65**
It is okay for the American government to prioritize younger immigrants over older ones because they can contribute more to the economy.	3.59	1.63	0.00	0.02	0.20	**0.64**
Immigrants who come to the United States should have work skills that the country needs.	4.78	1.51	0.14	-0.03	-0.04	**0.60**
Immigrants should not have the same access to social services as [American citizens] right away because they have not paid the same amount of taxes for these services.	3.91	1.92	0.09	-0.21	-0.19	**0.53**
It is okay for employers to prioritize applicants who have more experience in American workplaces, even if they have equivalent technical skills from other countries.	4.25	1.67	0.14	0.02	0.03	**0.48**
The American government should only allow refugees into this country if they are not going to be reliant on social support services.	3.79	1.86	0.26	-0.11	-0.07	**0.47**
New immigrants should have access to the same set of social support services as American citizens even if they have not paid taxes for as long.	4.18	1.93	-0.02	0.25	0.28	**-0.43**
If there are not enough Americans to fill jobs, then the government should allow more immigrants to enter the country.	4.65	1.74	-0.15	0.40	0.34	0.18
If people born and living outside of the United States are able to get jobs in The United States, they should be allowed to move in.	4.86	1.65	-0.13	0.37	0.42	0.11
The United States should limit the number of undocumented immigrants even if it fills jobs people do not care about.	4.40	1.99	0.45	0.08	-0.53	0.04
Immigration is okay as long as it is done legally.	5.87	1.24	-0.06	0.61	-0.48	0.19
The government should help everyone living in the United States regardless of where they came from.	4.66	1.88	0.00	0.44	0.41	-0.17

Item	M	SD	F1	F2	F3	F4
The American government should not spend money on extra resources to help new immigrants integrate to living in the United States.	3.74	1.86	0.35	-0.18	-0.11	0.32
The United States should be allowed to deport permanent resident immigrants if they break the law, regardless of how long they've lived here.	3.70	1.93	0.32	-0.05	-0.18	0.27
Immigration is good as long as it benefits the economy.	4.54	1.45	-0.06	0.38	0.17	0.51
Immigration has a has a negative impact on the social life of most Americans.	2.69	1.68	0.64	-0.35	0.13	0.05
Immigration is bad because it changes our country's core values for the worse.	2.63	1.67	0.57	-0.37	0.08	0.07
The United States should be allowed to revoke citizenship from immigrants who commit violent crimes.	5.13	1.90	0.39	0.13	-0.15	0.13

Factor Correlations	**F1**	**F2**	**F3**	**F4**
F1. Ingroup Threat	-			
F2. Cultural Enrichment Beliefs	-.70	-		
F3. Free Movement	-.50	.42	-	
F4. Economic Thinking	.55	-.24	-.42	-

Notes. F1 = Ingroup Threat, F2 = Cultural Enrichment Beliefs, F3 = Free-movement, and F4 = Economic Thinking

2.2.5 Summary

In Study 1, we found evidence for a 4-factor model of people's attitudes towards immigrants. Consistent with our hypotheses, we found a factor consistent with economic thinking—the extent to which people took into consideration economic issues when thinking about immigration. We also found a factor assessing cultural enrichment beliefs—the extent to which people thought immigrants improve their country through cultural exchange. Importantly, these two factors were distinct from a broader factor assessing ingroup threat—that is, the extent to which people thought immigration was threatening to one's country—which consisted of items related to cultural and economic threat. Lastly, we also found evidence for a free movement factor—the extent to which people thought there should be restrictions in where people should live. Most of these factors were weakly to moderately correlated with each other around $|r|$ around .24 to .55. The strongest correlation was between ingroup threat and cultural enrichment beliefs.

These factor correlations also provide evidence that economic thinking may be associated with more restrictive immigration attitudes overall. Economic thinking was both

positively associated with feelings of ingroup threat, and negatively associated with free movement attitudes, suggesting that those who engage in economic thinking may also feel more threatened by immigration and desire greater immigration restrictions.

One limitation of this study, however, is the large number of participants that were removed from analysis. The length of each item, and complexity of each issue, lead us to develop a post-hoc cut-off of cut-off of removing participants who spent less than 5 seconds per item on the survey. While this was meant to address issues of automated responding, it may have also biased our analyses towards participants who deliberate longer on immigration issues.

2.3 Study 2: Exploratory Factor Analysis (Canadian Sample)

We conducted another exploratory factor analysis for two reasons. First, because of data quality issues, a large number of participants were removed for the final analysis in Study 1, which may have affected our results. The prevalence of automated and low-quality responses from Amazon's Mechanical Turk likely stems from the platform being developed as a platform for online work. As such, it is to the participant's benefit to do tasks quickly, at the expense of quality. To mitigate this issue, Study 2 recruited participants from a Qualtrics survey panel as the participants would have signed up to complete surveys specifically. Second, we wanted to reduce the length of the items in our scale, and to address issues where some items cross-loaded onto multiple factors.

2.3.1 Expert Reviewers and Item Revision

Twelve expert reviewers consisting of collaborators and colleagues of the graduate student and advisor were recruited to review the items. These reviewers had expertise in scale development, immigration, and intergroup relations more broadly. The reviewers were sent a definition of the factors and the 48 items and were asked which factor they thought each item belonged to, as well as any open-ended feedback on each item. Based on their feedback, a new set of 44 items (11 items for each factor generated in Study 1) were generated, clarifying language and shortening items to be more succinct so that there is less ambiguity in interpreting them.

2.3.2 Participants and Procedure

N = 281 (166 female, 114 male, and 1 identified as another gender identity) White participants born in Canada aged 18 – 79 years old (*M* = 45.5, *SD* = 16.2) from a Qualtrics panel. This study was added to the end of another study examining how White Canadian's attitudes towards refugee claimants vary by race and where refugee claims were made. After the main task, which consisted of reading a fictitious article and rating their perceptions of refugee claimants, participants were randomly assigned to complete either a survey on political attitudes or their attitudes towards immigration (the items for this study). Qualtrics panels provide participants with various reward incentives and were compensated based on their preferred reward (e.g., direct payments, donations to charity, points).

2.3.3 Results

2.3.3.1 Data Cleaning

In Study 1, we experienced unanticipated issues with data quality due to the increased prominence of automated and low quality responding on Amazon's Mechanical Turk. This led to particularly stringent, post-hoc, data cleaning criteria that excluded a large proportion of participants. In the current study, we collected participants from a Qualtrics panel specifically for research studies rather than using a micro-work platform like Amazon's Mechanical Turk, to mitigate these issues. In addition, because we shortened the length of the questions, excluding participants who took on average 5s per question may be to strict. As such, the current study adopted a new data cleaning procedure. This involved removing participants for failing the attention check (*n* = 6), careless responding based on Huang et al.'s (2012) recommendation of removing participants who spent on average less than 2 seconds per question (*n* = 7), and removing multivariate outliers (*n* = 17) resulting in a final sample of *n* = 241 (147 female, 94 male) participants born in Canada aged 18 – 79 years old (*M* = 47.0, *SD* = 16.0).

2.3.3.2 Exploratory Factor Analysis

Inspection of the scree-plot (Figure 2.2) and parallel analysis suggested a 3-factor solution for the 44-item scale. A minimum residual exploratory factor analysis with an oblique rotation was conducted. Items with loadings greater than .40 on a single factor were

retained, with retained items and pattern coefficients summarized in Table 2.2 The 3-factor model appeared to tap into people's welcoming attitudes towards immigrants (F1; "*Immigration improves our way life by allowing us to have more diverse experiences*"), fears about how high levels of immigration would adversely affect the country (F2; *High levels of immigration make it hard for Canada to focus on local issues*"), and desire to restrict immigration (F3; *There should be fewer restrictions on who can cross the border*", reverse coded). The first two factors are similar to the cultural enrichment and ingroup threat factors found in Study 1, and the third factor is similar to the free-movement factor. Unfortunately, the economic thinking items did not generate a unique factor in this sample.

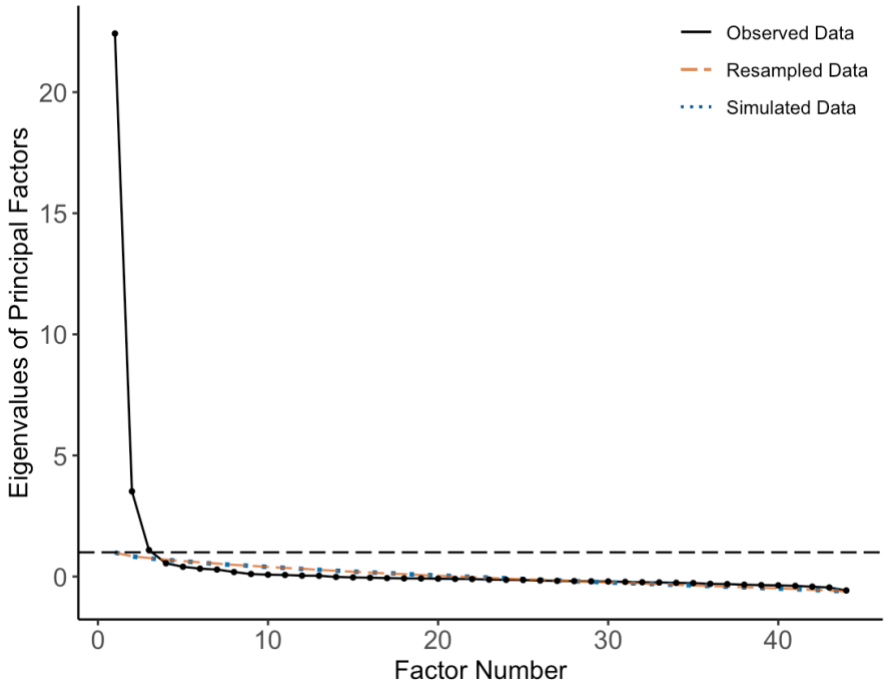

Figure 2.2 Scree Plot for the Canadian Qualtrics Panel Exploratory Factor Analysis
Note. The blue dotted line and orange dashed line represent eigenvalues generated from parallel analysis. Examining where eigenvalues for the observed data is greater than the simulated and resampled data suggests a 3-factor solution.

Table 2.2 Descriptive Statistics and Factor Loadings for the 3-Factor Model (Canadian Sample)

Item	M	SD	F1	F2	F3
Immigrants bring new food and cuisine that enrich life in Canada.	5.22	1.45	0.90	0.06	-0.04
Immigration improves our way life by allowing us to have more diverse experiences.	4.87	1.59	0.88	-0.06	-0.05
Immigrants improve society by making it more diverse.	4.92	1.54	0.87	-0.08	-0.02
It is good to be able to interact with immigrants from many different backgrounds.	5.27	1.45	0.86	-0.07	0.05
Having people from many different cultures in our community is a good thing.	5.11	1.49	0.85	-0.11	0.05
Immigration improves Canadian society because it brings together people from around the world.	4.89	1.53	0.84	-0.06	-0.07
Immigrants bring new ideas that enrich life in Canada	5.03	1.44	0.83	-0.12	0.03
Immigrants bring new customs and practices that make life in Canada more enjoyable.	4.59	1.64	0.81	-0.11	-0.03
Our community is stronger when we have people from many different cultures living together.	4.94	1.56	0.80	-0.17	0.00
One benefit of immigration is that it exposes Canadians to ideas and values different from our own.	5.06	1.53	0.80	-0.13	0.04
Allowing people from other countries to live and work in Canada improves the economy as a whole.	4.84	1.54	0.76	-0.18	0.11
Integrating values and practices of immigrants with our own is a good thing.	4.6	1.6	0.68	-0.19	-0.04
The government should help everyone living in Canada regardless of where they came from.	4.8	1.71	0.68	0.03	-0.26
It's okay to increase immigration to fill job shortages.	4.51	1.59	0.67	-0.08	0.11
Immigrants should have the same access to social services regardless of how they came here.	4.1	1.87	0.63	-0.04	-0.33
Beliefs and values of immigrants are compatible with our own.	3.86	1.61	0.42	-0.29	0.04
High levels of immigration make us vulnerable to new diseases from other countries.	4.52	1.85	-0.14	0.77	-0.07
Having high levels of immigration means that Canada opens itself up to problems from other countries.	4.51	1.78	-0.05	0.76	0.09

Item	M	SD	F1	F2	F3
High levels of immigration open us up to foreign political influences.	4.37	1.5	0.09	0.72	0.12
High levels of immigration make us vulnerable to health issues from other countries.	4.56	1.85	-0.13	0.70	0.01
High levels of immigration are a threat to our country's independence.	3.66	1.89	-0.29	0.68	-0.01
High levels of immigration make it hard for Canada to focus on local issues.	4.06	1.81	-0.19	0.68	0.05
More immigrants means that people born in Canada have less influence in politics.	4.07	1.81	-0.25	0.58	0.04
Having people from many different cultures in one place makes it hard to have a cohesive national identity.	3.92	1.82	-0.25	0.54	0.05
All else being equal, employers should hire immigrants with Canadian work experience over those who only have experience abroad.	4.05	1.34	0.17	0.38	0.18
Because they have not paid taxes as long other Canadians, immigrants should not have the same access to government services.	3.9	1.9	-0.24	0.45	0.26
There should be fewer restrictions on who can cross the border.	2.63	1.57	0.27	0.07	-0.64
It is okay to limit immigration if there is a security risk.	5.95	1.34	-0.04	0.25	0.53
It's okay to put limits on immigration if there are not enough jobs for everyone.	5.37	1.46	-0.13	0.26	0.55
The government should help everyone living in Canada regardless of whether they came here with proper documentation.	3.73	1.8	0.62	0.11	-0.46
Immigration is good as long as it benefits the economy.	4.76	1.39	0.62	0.35	0.48
I think it would be better if borders did not separate people from each other.	3.73	1.72	0.55	0.12	-0.34
People should be allowed to work in countries they do not plan to live in permanently.	4.25	1.62	0.44	0.04	-0.09
No type of immigration should be considered illegal.	2.96	1.67	0.41	0.09	-0.50
There should be stronger restrictions on immigration.	4.67	1.74	-0.38	0.40	0.31
High levels of immigration are a threat to a peaceful society.	3.71	1.87	-0.37	0.58	0.04
Immigrants who follow their own traditions tend to have a negative impact on Canadian culture.	3.81	1.79	-0.30	0.63	-0.04

Item	M	SD	F1	F2	F3
Religious practices of immigrants tend to have a negative effect on Canadian society.	3.8	1.9	-0.30	0.58	0.03
Children of migrants who do not plan to stay in Canada should not get citizenship just because they were born here.	4.22	1.93	-0.28	0.23	0.23
Immigrants should not be reliant on social support and government services.	4.93	1.72	-0.22	0.30	0.43
Decisions about immigration should primarily focus on the country's economic needs.	4.40	1.52	0.20	0.45	0.44
It is better to allow immigrants into Canada who can contribute to the economy over family members of existing immigrants.	4.46	1.59	0.19	0.36	0.41
Immigrants who come to Canada should have work skills that the country needs.	5.21	1.32	0.14	0.46	0.49
It is okay to limit immigration if new immigrants struggle to find work in Canada.	5.02	1.48	-0.13	0.30	0.54
Factor Correlations	**F1**	**F2**	**F3**		
F1. Welcoming Attitudes	-				
F2. Ingroup Threat	-.63	-			
F3. Restricting Immigration	-.27	.50	-		

Notes. F1 = welcoming attitudes, F2 = ingroup threat, F3 = restricting immigration

2.3.3.3 Summary

Compared to Study 1, we did not generate a separate economic thinking factor. Instead the economic-related items either did not load significantly on any factor or were mainly subsumed by the first factor assessing "welcoming attitudes." The factors extracted from exploratory factor analysis are sensitive to wording of the items in the scale, and may generate factors that are explained by *method effects*. That is, the way some of the items are worded may contribute to the variance explained by the factors beyond the constructs that are actually being measured. For example, item valence tends to lead the negatively phrased items to cluster together into a specific factor, capturing participants' response style to negatively phrased items rather than the actual construct (Distefano & Motl, 2009; Lindwall et al., 2011).

Many of the items in factor 2 were phrased in terms of "high levels of migration" — a phrasing that was less prominent in Study 1 which may have influenced participants'

responses. Past research has found that White westerners tend to feel threatened when they are presented with information about rising immigration and their numeric decline as a population (Craig & Richeson, 2014a; Danbold & Huo, 2015). As such, the patterns of responses across all items may better capture welcoming feelings versus threat. Even the third factor, concerning free movement, reflects preferences for more expansive (i.e., welcoming) or restrictive immigration policies across dimensions of security and economic concerns.

Lastly, differences in participant exclusion criteria may have affected the overall factor structure. In Study 1, we removed participants who deliberated less than 5 seconds per item on average. This criterion was chosen post-hoc, and based on what the authors thought was reasonable based on item length. For Study 2, we reduced the length of each item and used a less restrictive cut-off of deliberating less than 2 seconds per question based on Huang et al.'s (2012) recommendations. The stricter cut-offs for Study 1 may have selected for participants who spent more time deliberating on their responses capturing a 4-factor model of attitudes, whereas the inclusion of individuals who spent less time deliberating may have resulted in a factor structure that captures attitudes along dimensions of liking (i.e., welcoming attitudes) and disliking (i.e., threat and restriction), without economic deliberation.

2.4 Study 3: Re-analysis of Study 1 and 2

To address the potential issues of item phrasing and over-inclusion that may have influenced the hypothesized factor structure in Study 2, the data were reanalyzed using only items written specifically to tap into economic thinking and cultural enrichment beliefs. Parallel analysis and exploratory factor analysis is first conducted to examine whether we spontaneously generate the two hypothesized factors, or if economic thinking would not generate a unique factor. Afterwards, model fit was examined using confirmatory factor analysis. The validity of the two-factor structure was further examined by analyzing data from the U.S. sample from Study 1. Though items were reworded between studies, we identify items that correspond to the economic thinking and cultural enrichment factors to analyze the model fit of the two-factor structure.

2.4.1 Data and Methods

Data for this study were taken from Study 1's U.S. Amazon's Mechanical Turk panel, which consisted of N = 310 (134 female, 174 male, and 2 another gender identity) predominantly White (80%) and U.S.-born (92%) participants 19 – 86 years old (M = 40.0, SD = 14.1), and from Study 2's Canadian Qualtrics Panel, consisting of N = 241 (147 female, 94 male) all-White participants born in Canada aged 18 – 79 years old (M = 47.0, SD = 16.0).[1] Analysis was limited to the items from each study that were written to tap specifically into cultural enrichment and economic thinking.

2.4.2 Results

2.4.2.1 Exploratory Factor Analysis

Data from the 22 items tapping into cultural enrichment beliefs and economic thinking from the Canadian Qualtrics panel were analyzed with an exploratory factor analysis. A scree plot and parallel analysis suggested a 2-factor solution (Figure 2.3). The items and pattern coefficients are summarized in Table 2.3, with only items that have a single factor loading greater than .40 and no cross-loading greater than .30 retained. This resulted in dropping three items from the scale due to high cross-loadings.

The remaining 19 items consisted of 13 items assessing *cultural enrichment beliefs* (F1) and 6 items assessing *economic thinking* (F2) towards immigration. Items in the *cultural enrichment beliefs* factor appear to tap into people's beliefs that the cultural diversity brought about by immigration improves the receiving country as a whole. Items in the *economic thinking* factor appear to tap into the extent to which people think that economic factors should be taken into consideration when it comes to immigration.

Two items (i.e., "Allowing people from other countries to live and work in Canada improves the economy as a whole" and "It's okay to increase immigration to fill job shortages") in the *cultural enrichment beliefs* factor were thematically inconsistent with the rest of the scale, and did not load heavily on the *economic thinking* factor (factor loadings < .15)

[1] These numbers represent the samples from Study 1 and Study 2 after cleaning data.

despite being thematically more consistent with that factor. Similar to Study 2, part of this may be due to methods effects with how the questions were phrased. Compared to the economic thinking factor, which did not place a value judgment on immigration, the two economic items that loaded onto the cultural enrichment beliefs factor tended to be more positive. Many of the cultural enrichment belief items were also phrased in terms of positivity. As such, the first factor may be capturing positively-valanced responses along with cultural enrichment beliefs more broadly. In addition, the same economic items that loaded into the "welcoming attitudes" in Study 2 loaded onto this factor as well. This may be because pro-immigration ideology in Canada is constructed in terms of both multiculturalism *and* the belief that immigration positively contributes to the economy.

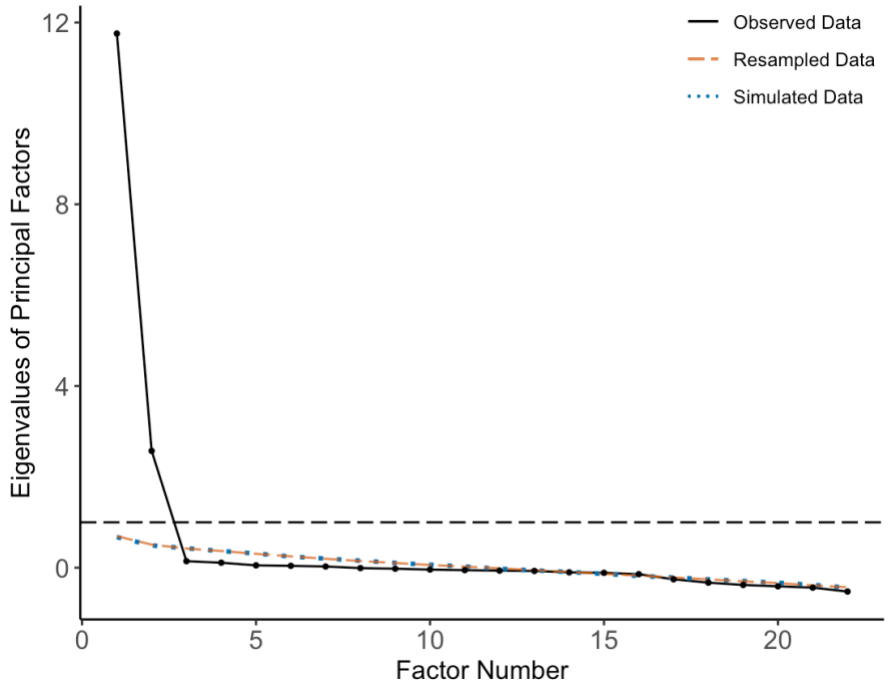

Figure 2.3 Scree Plot for the 22-Item Scale

Notes. The blue dotted line and orange dashed line represent eigenvalues generated from parallel analysis. Examining where eigenvalues for the observed data is greater than the simulated and resampled data suggests a 2-factor solution.

Table 2.3 Factor Loadings For The 2-Factor Model (Canadian Sample)

Item	F1	F2
Having people from many different cultures in our community is a good thing.	0.93	0.02
Immigration improves our way life by allowing us to have more diverse experiences.	0.92	-0.05
Immigrants improve society by making it more diverse.	0.92	-0.02
It is good to be able to interact with immigrants from many different backgrounds.	0.91	0.04
Immigrants bring new ideas that enrich life in Canada	0.91	0
Our community is stronger when we have people from many different cultures living together.	0.89	-0.06
Immigration improves Canadian society because it brings together people from around the world.	0.88	-0.06
Immigrants bring new customs and practices that make life in Canada more enjoyable.	0.88	-0.06
One benefit of immigration is that it exposes Canadians to ideas and values different from our own.	0.88	0
Immigrants bring new food and cuisine that enrich life in Canada.	0.87	0.03
Integrating values and practices of immigrants with our own is a good thing.	0.78	-0.12
It is okay to limit immigration if new immigrants struggle to find work in Canada.	-0.26	0.67
It's okay to put limits on immigration if there are not enough jobs for everyone.	-0.25	0.66
Immigrants who come to Canada should have work skills that the country needs.	-0.06	0.71
It is better to allow immigrants into Canada who can contribute to the economy over family members of existing immigrants.	0.04	0.63
Decisions about immigration should primarily focus on the country's economic needs.	0.02	0.73
All else being equal, employers should hire immigrants with Canadian work experience over those who only have experience abroad.	0.02	0.45
Allowing people from other countries to live and work in Canada improves the economy as a whole.	0.86	0.03
It's okay to increase immigration to fill job shortages.	0.73	0.12
Immigrants should not be reliant on social support and government services.	-0.33	0.57
Immigration is good as long as it benefits the economy.	0.48	0.70
Because they have not paid taxes as long other Canadians, immigrants should not have the same access to government services.	-0.43	0.52

Notes. F1 = Cultural Enrichment Beliefs, F2 = Economic Thinking

2.4.2.2 Confirmatory Factor Analysis

A confirmatory factor analysis (CFA) was conducted using the lavaan package in R (Rosseel, 2012) to examine the model fit of the two-factor structure with more strict assumptions. Compared to exploratory factor analysis, CFA assumes zero cross-loadings between items and factors. This analysis is appropriate before moving forward to further validate the scale because the purpose of developing this scale is to disentangle people's economic thinking from their social attitudes about immigration. Model fit was assessed using general guidelines proposed by Kenny (2020) examining multiple fit indices including the Tucker Lewis Index (TLI) and Comparative Fit Index (CFI), where .90 to .95 indicates adequate fit and above .95 is excellent fit; Root Mean Square Error Approximation (RMSEA) where .01, .05, and .08 indicate cut-offs for excellent, good, and mediocre fit; and finally Standardized Root Mean Square Residual, where a value less than .08 is ideal.

Two separate confirmatory factor analyses were conducted on a 19-item version and 17-item version of the scale. The 19-item version contains the two "economic" items that loaded onto the *cultural enrichment belief* factor, while the 17-item version of the scale does not. There was acceptable model fit for both the 19-item (CFI = .970; TLI = .967; RMSEA = .062, 90% CI [.051, .072]; SRMR = .051) and 17-item (CFI = .975; TLI = .971; RMSEA = .062, 90% CI [.049, .074]; SRMR = .050) versions of the scale across multiple fit indices. The item means and factor loadings for the two models are summarized in Table 2.3. Cultural enrichment beliefs and economic thinking was negatively associated at r = -.42, 95% CI[-.52, -.31] for the 19-item scale, and r = -.43, 95% CI[-.53, -.33] for the 17-item scale, such that greater endorsement of cultural enrichment beliefs was associated with lower levels of economic thinking. Given that there is acceptable model fit across the two samples, and our interest in focusing on pro-immigration and economic thinking, we opted to use the 17-item version of the scale moving forward so that the scale item content more closely matches the constructs we are trying to measure.

Table 2.4 Standardized Factor Loadings For The 19- And 17-Item ETCEI Scale (Canadian Sample)

			19-item model		17-item model	
Item	**M**	**SD**	**Estimate**	**SE**	**Estimate**	**SE**
Cultural Enrichment Beliefs						
Immigration improves our way life by allowing us to have more diverse experiences.	4.87	1.59	0.94	0.01	0.94	0.01
Immigrants bring new customs and practices that make life in Canada more enjoyable.	4.59	1.64	0.89	0.01	0.89	0.01
Immigrants improve society by making it more diverse.	4.92	1.54	0.94	0.01	0.94	0.01
Our community is stronger when we have people from many different cultures living together.	4.94	1.56	0.92	0.01	0.92	0.01
Immigration improves Canadian society because it brings together people from around the world.	4.89	1.53	0.91	0.01	0.92	0.01
Having people from many different cultures in our community is a good thing.	5.11	1.49	0.93	0.01	0.93	0.01
One benefit of immigration is that it exposes Canadians to ideas and values different from our own.	5.06	1.53	0.88	0.02	0.88	0.02
Integrating values and practices of immigrants with our own is a good thing.	4.60	1.60	0.83	0.02	0.83	0.02
Immigrants bring new ideas that enrich life in Canada	5.03	1.44	0.91	0.01	0.91	0.01
Allowing people from other countries to live and work in Canada improves the economy as a whole.	4.84	1.54	0.84	0.02	-	-
It is good to be able to interact with immigrants from many different backgrounds.	5.27	1.45	0.89	0.01	0.90	0.01
Immigrants bring new food and cuisine that enrich life in Canada.	5.22	1.45	0.86	0.02	0.86	0.02
It's okay to increase immigration to fill job shortages.	4.51	1.59	0.68	0.04	-	-
Economic Thinking						
It is okay to limit immigration if new immigrants struggle to find work in Canada.	5.02	1.48	0.86	0.02	0.86	0.02

			19-item model		17-item model	
Item	**M**	**SD**	**Estimate**	**SE**	**Estimate**	**SE**
It's okay to put limits on immigration if there are not enough jobs for everyone.	5.37	1.46	0.84	0.03	0.84	0.03
Decisions about immigration should primarily focus on the country's economic needs.	4.40	1.52	0.65	0.04	0.65	0.04
Immigrants who come to Canada should have work skills that the country needs.	5.21	1.32	0.70	0.04	0.70	0.04
It is better to allow immigrants into Canada who can contribute to the economy over family members of existing immigrants.	4.46	1.59	0.53	0.05	0.53	0.05
All else being equal, employers should hire immigrants with Canadian work experience over those who only have experience abroad.	4.05	1.34	0.86	0.02	0.36	0.06

Note. Missing factor loadings on the 17-item version indicates the items that were dropped for being thematically inconsistent with the rest of the scale. Cultural enrichment beliefs and economic thinking was correlated at r = -.42, 95% CI[-.52, -.31] for the 19-item version of the scale, and at r = -.43, 95% CI[-.53, -.33] for the 17-item version of the scale.

2.4.2.3 Investigating 2-factor structure in U.S. data

To further investigate the validity of the 2-factor model, additional CFAs were conducted on the U.S. data from Amazon's Mechanical Turk. Given that the items were rewritten between Study 1 and Study 2, a CFA was conducted only for items that were either identical, reworded for clarity, or rewritten but were similarly themed. Additional CFAs were conducted for the Canadian Qualtrics sample, dropping the new items that did not have a corresponding item from Study 1. Additionally, the items "Allowing people from other countries to live and work in Canada improves the economy as a whole" and "Immigration improves Canadian society because it brings together people from around the world" were dropped because they were two new items split from the original "Allowing people from other countries to live and work in United States improves the country as a whole." Lastly, to simplify analyses, the item "It's okay to increase immigration to fill job shortages." was also dropped despite having a corresponding item in Study 1, due to the item not fitting thematically with the rest of the scale. This resulted in an 11-item scale, with 6 items assessing *cultural enrichment beliefs* and 5 items assessing *economic thinking* (see Table 2.4). There was acceptable fit for the 11-item two-factor model in both the U.S. sample (CFI = .967; TLI = .957; RMSEA = .082, 90% CI [.067, .098]; SRMR = .048) and Canadian sample (CFI = .970; TLI = .962; RMSEA = .077, 90% CI [.058, .096]; SRMR = .054) across multiple fit indices. Item means and factor loadings are summarized in Table 2.6 for the U.S. sample and

2.7 for the Canadian sample. Cultural enrichment beliefs and economic thinking were moderately associated in both samples at r = -.60 95% CI [-.66, -.52] for the U.S. sample and r = -.43, 95% CI[-.53, -.32] for the Canadian sample, such that greater endorsement of cultural enrichment beliefs was associated with lower levels of economic thinking.

Table 2.5 Item Comparisons Between Study 1 (U.S. Sample) And Study 2 (Canadian Sample)

Study 1	Comparison	Study 2
Cultural Enrichment		
Immigrants typically improve The United States' cultural atmosphere.	*Reworded*	Immigrants improve society by making it more diverse.
Immigrants bring in new foods, ideas, and customs that generally enriches life in The United States.	*Similar theme*	Immigrants bring new food and cuisine that enrich life in Canada.
One benefit of immigration is that it exposes Americans to ideas and values that are different than their own.	*Similar theme*	One benefit of immigration is that it exposes Canadians to ideas and values different from our own.
In general, it is beneficial to be able to interact with immigrants who come from many different backgrounds.	*Similar theme*	It is good to be able to interact with immigrants from many different backgrounds.
I think it is good for Canada to have people from many different cultures in one community.	*Similar theme*	Having people from many different cultures in our community is a good thing.
The United States absorbing values and practices from other countries through immigration is generally a good thing.	*Reworded*	Integrating values and practices of immigrants with our own is a good thing.
Economic Thinking		
If new immigrants are taking jobs from Canadians, then the government should put limits on immigration.	*Reworded*	It's okay to put limits on immigration if there are not enough jobs for everyone.
The government should prioritize allowing new immigrants into Canada based on their ability to contribute to the economy, rather than prioritizing family members of existing immigrants.	*Reworded*	It is better to allow immigrants into Canada who can contribute to the economy over family members of existing immigrants.
Immigrants who come to Canada should have work skills that the country needs.	*Identical*	Immigrants who come to Canada should have work skills that the country needs.
If immigrants from certain countries use more resources than they contribute, it is okay for the Canadian government to limit immigration from those countries.	*Reworded*	It is okay to limit immigration if new immigrants struggle to find work in Canada.
It is okay for employers to prioritize applicants who have more experience in Canadian workplaces, even if they have equivalent technical skills from other countries.	*Reworded*	All else being equal, employers should hire immigrants with Canadian work experience over those who only have experience abroad.

Table 2.6 Standardized Factor Loadings For The 11-Item Version Used In The U.S. Sample

Items	M	SD	Estimate	SE
Cultural Enrichment Beliefs				
Immigrants typically improve The United States' cultural atmosphere.	5.13	1.58	0.89	0.01
I think it is good for the United States to have people from many different cultures in one community.	5.43	1.48	0.91	0.01
Immigrants bring in new foods, ideas, and customs that generally enriches life in The United States.	5.59	1.43	0.92	0.01
The United States absorbing values and practices from other countries through immigration is generally a good thing.	5.16	1.51	0.87	0.02
One benefit of immigration is that it exposes Americans to ideas and values that are different than their own.	5.60	1.48	0.85	0.02
In general, it is beneficial to be able to interact with immigrants who come from many different backgrounds.	5.51	1.43	0.87	0.02
Economic Thinking				
If immigrants from certain countries use more resources than they contribute, it is okay for the American government to limit immigration from those countries.	4.23	1.88	0.87	0.02
If new immigrants are taking jobs from Americans, then the government should put limits on immigration.	4.24	1.87	0.83	0.02
The government should prioritize allowing new immigrants into the United States based on their ability to contribute to the economy, rather than prioritizing family members of existing immigrants.	4.15	1.71	0.64	0.04
Immigrants who come to the United States should have work skills that the country needs.	4.78	1.51	0.65	0.04
It is okay for employers to prioritize applicants who have more experience in American workplaces, even if they have equivalent technical skills from other countries.	4.25	1.67	0.46	0.05

Note. Cultural enrichment beliefs and economic thinking were correlated at $r = -.60$ 95% CI [-.66, -.52]

Table 2.7 Standardized Factor Loadings For The 11-Item Version Used In The Canadian Sample

Item	M	SD	Estimate	SE
Cultural Enrichment Beliefs				
Immigrants improve society by making it more diverse.	4.92	1.54	1.00	0.00
Having people from many different cultures in our community is a good thing.	5.11	1.49	0.97	0.03
One benefit of immigration is that it exposes Canadians to ideas and values different from our own.	5.06	1.53	0.92	0.04
Integrating values and practices of immigrants with our own is a good thing.	4.60	1.60	0.91	0.05

Item	M	SD	Estimate	SE
It is good to be able to interact with immigrants from many different backgrounds.	5.27	1.45	0.92	0.04
Immigrants bring new food and cuisine that enrich life in Canada.	5.22	1.45	0.85	0.04
Economic Thinking				
It is okay to limit immigration if new immigrants struggle to find work in Canada.	5.02	1.48	1.00	0.00
It's okay to put limits on immigration if there are not enough jobs for everyone.	5.37	1.46	0.96	0.07
Immigrants who come to Canada should have work skills that the country needs.	5.21	1.32	0.70	0.06
It is better to allow immigrants into Canada who can contribute to the economy over family members of existing immigrants.	4.46	1.59	0.62	0.08
All else being equal, employers should hire immigrants with Canadian work experience over those who only have experience abroad.	4.05	1.34	0.35	0.07

Notes. Cultural enrichment beliefs and economic thinking was correlated at r = -.43, 95% CI[-.53, -.32]

2.4.3 Summary

In this chapter, we focused only on the 22 items relevant to cultural enrichment beliefs and economic thinking. In Study 2, we did not find evidence for factors related to economic thinking in our exploratory factor analysis, inconsistent with our findings in Study 1. These differences may be due to differences in item wording and exclusion criteria, where we excluded participants from Study 1 who spent less than 5 seconds per item, compared to 2 seconds per item in Study 2. This may have inadvertently selected for participants who were more likely to deliberate on immigration issues, whereas those less likely to deliberate were more likely to respond based on broader patterns of "liking" and "disliking". As such, we focused only on items relevant to economic thinking and cultural enrichment beliefs in order to construct a 2-factor scale that was not framed in terms of threat and competition.

Consistent with our hypothesis, we found evidence for a 2-factor model across the U.S. and Canadian samples. We found good model fit for the confirmatory factor analysis across various specifications in both the U.S. and Canadian samples, finding that cultural enrichment beliefs and economic thinking were moderately, and negatively associated with each other.

2.5 Study 4: Confirmatory Factor Analysis and Test-Retest Reliability

The purpose of Study 4 was to cross-validate the factor structure from Study 3 in a new sample. Though we examined model fit using confirmatory factor analysis in the previous sample, it is often not advisable to conduct a CFA for the purpose of cross-validation on the same sample used to discover the factor structure. In addition while people's attitudes towards immigration may be susceptible to large geopolitical events (e.g., elections; Gaucher et al., 2018), people's attitudes tend to incorporate long-standing beliefs and values. As such, we wanted to investigate the stability of people's cultural enrichment beliefs and economic thinking over a short period of time. As such, we assessed the scale's test-retest reliability—a measure of a construct's temporal stability—over a two-week period. Though there was an 11-item version of the scale constructed in Study 3, many of the items that were dropped were done so atheoretically. That is, the items that were retained were based on whether the same or similarly worded items existed in earlier versions of the scale, rather than due to factor loadings or overall thematic similarity with the construct. Because of this, the following studies continue to use the 17-item version.

2.5.1 Participants and Procedure

N = 507 participants (277 men, 220 women, 7 participants identifying as another gender identity, and 3 who did not wish to respond) were recruited from the survey platform Prolific Academic for a 2-wave study examining social and political attitudes in August 2020. The study advertisement was targeted towards individuals who identified themselves as over 18 years of age and currently residing in Canada, inviting them to participate in a 15 to 20 minute survey on social attitudes. Participants were between 18 and 99[2] years old (*M* = 30.76, *SD* = 10.37), with 58.40% of participants identifying as White and 81.90% reporting they were born in Canada. After consenting to participate in the study, participants were first presented with two survey blocks assessing immigrant attitudes and an unrelated political attitudes scale in randomized order. The immigrant attitude scale consisted of 11 items assessing cultural enrichment beliefs and 6 items assessing economic thinking on a 7-point

[2] Age was self-reported, and so participants may not have reported their true age

scale from 1(strongly disagree) to 7(strongly agree). Afterwards, participants completed surveys assessing various socio-political attitudes used in a separate study for survey validation (see Chapter 3 for details). After completing the survey, participants were compensated £2.15 for their time.

Participants were invited back to complete another 15 to 20-minute survey two weeks after completing the first wave of the study. The second wave consisted of N = 438 participants (249 men, 180 women, 7 participants who identified as another gender identity, and 2 who did not wish to respond) between the ages of 18 and 68 years old. Similar to the first time point, the majority of participants reported identifying as White (67.58%) and born in Canada (94.75%). After consenting to the study, participants were again presented with survey blocks assessing immigrant attitudes and an unrelated political attitude scale in random order. The rest of the survey assessed various socio-political attitudes and preferences used for survey validation (see Chapter 3). Participants were compensated £2.15for their participation.

2.5.2 Results and Discussion

2.5.2.1 Data Cleaning

Data were cleaned in a multi-step process. First, participants who did not complete the immigrant attitude scale were removed from both datasets, resulting in two participants removed in wave 1 and one participant removed in wave 2. Next, participants who sped through the immigrant attitude survey (i.e., spent 2 seconds or less per question) were removed from the study, resulting in an additional four participants removed from wave 1 and six participants removed from wave 2. Next, multivariate outliers based on item scores were removed from the study, resulting in an additional 34 participants removed from wave 1 and five participants removed from wave 2.

2.5.2.2 Confirmatory Factor Analysis

The confirmatory factor analysis was conducted with data from the first wave of the survey. In addition to the general data cleaning, additional participants were removed for failing a single-item attention check in the portion of the survey assessing their attitudes towards immigrants, resulting in N = 438 participants used for the confirmatory factor

analysis. This resulted in a 25:1 item-to-participant ratio, exceeding the recommended for sample size for confirmatory factor analysis (Gorsuch, 1983, Everitt, 1978). There was good model fit for the 2-factor model across multiple indices (CFI = 0.956; TLI = 0.950; RMSEA = 0.069, 90% CI [0.061, 0.077]; SRMR = 0.038), validating the factor structure from Study 1 – 3. Factor loadings can be found in Table 2.8.

Table 2.8 Structure Coefficients For The Economic Thinking And Cultural Enrichment Beliefs About Immigration (ETCEI) Scale

Item	M	SD	Estimate	SE
Cultural Enrichment Beliefs				
Immigrants improve society by making it more diverse.	5.71	1.31	0.89	0.01
Immigrants bring new food and cuisine that enrich life in Canada.	6.18	1.10	0.63	0.03
One benefit of immigration is that it exposes Canadians to ideas and values different from our own.	5.92	1.12	0.79	0.02
It is good to be able to interact with immigrants from many different backgrounds.	6.02	1.05	0.81	0.02
Having people from many different cultures in our community is a good thing.	5.95	1.13	0.90	0.01
Integrating values and practices of immigrants with our own is a good thing.	5.28	1.31	0.67	0.03
Immigration improves Canadian society because it brings together people from around the world.	5.70	1.25	0.88	0.01
Immigration improves our way life by allowing us to have more diverse experiences.	5.75	1.21	0.87	0.01
Our community is stronger when we have people from many different cultures living together.	5.76	1.27	0.85	0.01
Immigrants bring new customs and practices that make life in Canada more enjoyable.	5.50	1.32	0.81	0.02
Immigrants bring new ideas that enrich life in Canada	5.78	1.22	0.86	0.01
Economic Thinking				
It's okay to put limits on immigration if there are not enough jobs for everyone.	5.01	1.62	0.86	0.02
It is better to allow immigrants into Canada who can contribute to the economy over family members of existing immigrants.	4.21	1.59	0.67	0.03
Immigrants who come to Canada should have work skills that the country needs.	5.02	1.52	0.73	0.03
It is okay to limit immigration if new immigrants struggle to find work in Canada.	4.69	1.58	0.82	0.02
All else being equal, employers should hire immigrants with Canadian work experience over those who only have experience abroad.	4.02	1.57	0.43	0.04

Item	M	SD	Estimate	SE
Decisions about immigration should primarily focus on the country's economic needs.	4.31	1.64	0.73	0.03

Notes. Cultural enrichment beliefs and economic thinking was moderately correlated at r = -.48 95% CI [-.55, -.40].

2.5.2.3 Internal Consistency Reliability

Internal consistency reliability in psychometrics refers to the extent to which items in a scale measure the same construct (Cronbach, 1951). One way to measure internal consistency is using Cronbach's alpha (α), which measures the correlation between items in a particular scale. Though a higher inter-item correlation typically indicates that the items are measuring the same construct, these values may be inflated and indicate item redundancy when the same item is phrased multiple ways (Boyle, 1991). Looking at the Cronbach's alpha of both wave 1 and wave 2 of the survey, we see that there is good internal consistency for both the economic thinking (wave 1 α = .86, wave 2 α = .88) and cultural enrichment beliefs (wave 1 α = .95, wave 2 α = .97) scales—though the high values in the latter may indicate some item redundancy.

2.5.2.4 Test-Retest Reliability

Test-retest reliability measures the consistency of a measure over time, with the assumption that the underlying construct is stable over time. Higher reliability indicates greater consistency, and lower reliability indicates lower consistency across time points. Because participants' responses were combined across the first and second time points, participants were removed for failing the attention check in either wave of the survey. This resulted in a final sample of N = 396 for the analysis. A Pearson's product moment correlation was conducted for each factor separately and found that the correlation between wave 1 and wave 2 was $r(394) = 0.86$, 95% CI[0.83, 0.88] for *cultural enrichment beliefs* and $r(394) = 0.84$, 95% CI[0.81, 9.87] for *economic thinking*, suggesting that people's cultural enrichment beliefs and economic thinking are consistent at least over a 2-week time period.

2.6 Study 5: Measurement Invariance

The purpose of Study 5 is to examine measurement invariance across different subpopulations. In psychometric research, measurement invariance assesses the equivalence

of a construct across different groups, populations, or time-points—that is, does the scale measure the same construct, and do these constructs have the same meaning across these different groups, populations or time points (Putnick & Bornstein, 2016). This is particularly important in cases where people may be interested in comparing mean differences across different groups, as a lack of measurement invariance means that group differences in responses may be due to differences in how these groups understand the construct, rather than differences in attitudes.

There are four types of invariance that researchers examine in hierarchical order. The first level is configural invariance, which measures whether the construct has the same patterns of association across groups (Putnick & Bornstein, 2016). In the context of the economic thinking and cultural enrichment beliefs scale, there are 6 items loading onto the economic thinking factor and 11 items on cultural enrichment. The measure would have configural invariance if the same items loaded onto the same factors across all specified groups. After configural invariance is established, metric invariance—the extent to which the factor loadings for each item is similar across populations—is assessed. For example, if the factor loading for the item, "Immigrants improve society by making it more diverse" is .65 for cultural enrichment in one group, the factor loading for this item should also be approximately .65 in other groups. Once metric invariance is established, scalar invariance is tested to examine whether the intercept is equivalent across groups. In the context of a Likert scale, it would suggest that endorsing "strongly agree" to the item "Immigrants improve society by making it more diverse" indicates similar levels of cultural endorsement beliefs across groups. If there is no scalar invariance, then it would suggest endorsement of "Immigrants improve society by making it more diverse" would indicate higher or lower levels of cultural enrichment beliefs across different groups. Lastly, strict or residual invariance measures whether the sum of the residuals (both the variances of items not shared with a factor and the measurement error) is similar across groups.

For this study, we look at invariance across gender, immigration status, and racialization. Given that there are gender differences in ideology related to prejudice (Foels & Reed, 2010), prejudice towards various minority groups (Kudrnáč, 2016; Ratcliff et al., 2016), and ethnocultural empathy (Cundiff & Komarraju, 2008), there may also be gender differences in economic thinking and cultural enrichment beliefs about immigration. With

regards to immigration and racialization, there are many things that can influence economic thinking and cultural enrichment attitudes for immigrants and racialized minorities. On one hand, immigrants may hold similar attitudes to their non-immigrant counterparts either by adopting the dominant ideology through socialization, or through self-selection as most Canada's new permanent residents are economic migrants (IRCC, 2022a). At the same time, the policy focus on economic migration in Canada has often been at the expense of family reunification policies (Root, 2014), making it more difficult for immigrants to sponsor their families. As such, immigrants in Canada may engage in less economic thinking than non-immigrant residents. Additionally, most of Canada's immigrants come from non-European countries; as such, much of the non-European population are either immigrants or just a few generations removed from being immigrants. Because these factors may influence endorsement of these attitudes, it is important to assess measurement invariance so that we can attribute any (lack of) differences in attitudes to differences in these groups and their experiences, rather than due to measuring different constructs.

2.6.1 Participants and Procedure

Data for the invariance testing were combined from two separate surveys from related projects assessing how attitudes predicted preference for immigrants as a function of various human capital characteristics, admission category, and country of origin (N = 480, see Chapter 4 for details) and the relationship between admission category, attitudes towards immigrants, and dehumanization (N = 482, see Chapter 5 for details). Both datasets were collected from independent samples on Prolific Academic, with no participant overlap in participation. Participants across both studies first completed a demographic questionnaire, followed by the immigration attitude survey. After the survey, participants completed the relevant tasks for their respective studies. The final dataset (N = 962) consisted of participants who completed the survey and did not fail the attention check on the survey portion of the study. Participants ranged from 18 to 77 years old (M = 33.28, SD = 11.5), predominantly identifying as White (n = 568, 59.04%) and born in Canada (n = 715, 74.32%). The sample had a somewhat equal gender distribution between men and women, with 485 (50.42%) identifying as women, 448 (46.57%) identifying as men, and 29 (3.01%) identifying as another gender identity.

2.6.2 Results

2.6.2.1 Measurement Invariance

Measurement invariance was analyzed using the lavaan (Rosseel, 2012) and semTools (Jorgensen et al., 2022) packages. Model fit was calculated for various constrained models across gender (men, women), immigration status (born in Canada, born outside of Canada), and racialization (White, non-White). Since only a small proportion of our participants identified as another gender identity, we restricted analysis of gender invariance to those who identified as men or women only. Similarly, because we did not have a large enough sample size for each race or ethnicity category, we limited comparing measurement invariance across racialization to those who identified as White (monoracial) and those who identified with other racial or ethnic identities.

Though there are no set guidelines for sample sizes for measurement invariance testing, we used the general sample size heuristic for CFA for each group. General item-to-participant sample size heuristics suggest there should be at least five (Gorsuch, 1983) or ten (Nunnally, 1978) participants for every item in a factor analysis. Using these guidelines, we have a sufficient sample size to assess measurement invariance across gender (*women* = 448, *men* = 485), immigration status (non-immigrant / born in Canada = 715, immigrant / born outside of Canada = 247), and racialization (monoracial White = 568, non-White / multiracial = 394).

Model 1 represents the model fit when the same model structure is imposed across all groups in the analysis. In addition to imposing the same factor structure, Model 2 constrains factor loadings across groups to examine *weak* or *metric* invariance. Model 3 additionally constrains the intercepts across groups, examining *strong* or *scalar* invariance. Model 4 additionally constrains residual variances to be equal across groups, measuring *strict invariance* or *invariant uniqueness* across groups. Configural invariance is assessed by examining the model fit of the CFA constrained across groups. To assess metric, scalar, and strict invariance, the change in CFI (ΔCFI) and RMSEA (ΔRMSEA) from the preceding models were assessed (see Putnick & Bornstein, 2016 for review). In general, a difference in .010 or lower for CFI and .015 or lower for RMSEA from the previous model indicates metric, scalar, and strict invariance. Though some articles assess measurement invariance using $\Delta\chi^2$,

this fit index is best for models between 75 to 200 observations, as larger models (e.g., $n >$ 400) tend to always be significant (Kenny, 2020).

As we can see in Table 2.9, there was configural invariance across gender, immigration status, and racialization. The CFI and TLI for model 1 across all specifications were at least .960 or higher, with an RMSEA .061 or lower, and an SRMR .038 or lower. Looking at models 2 – 4, we see that all ΔCFI ranged between .001 to .007, and ΔRMSEA ranged between .001 to .004, suggesting there was metric, scalar, and strict invariance across the gender, immigration status, and racialization groups specified.

Table 2.9 Fit Indices for Measurement Invariance Across Demographic Groups

Model	CFI	TLI	RMSEA	SRMR	ΔCFI	ΔRMSEA
Gender						
1: Configural	.968	.963	.061 [.056, .067]	.038	-	-
2: Metric	.967	.965	.060 [.054, .065]	.046	.001	.001
3: Scalar	.967	.967	.058 [.053, .064]	.046	.000	.002
4: Strict	.960	.962	.063 [.057, .068]	.051	.007	.004
Immigration Status						
1: Configural	.971	.967	.059 [.053, .065]	.036	-	-
2: Metric	.970	.967	.058 [.053, .064]	.042	.001	.001
3: Scalar	.968	.967	.058 [.053, .064]	.043	.002	.000
4: Strict	.966	.967	.059 [.054, .064]	.044	.002	.000
Racialization						
1: Configural	.972	.968	.058 [.052, .064]	.037	-	-
2: Metric	.970	.967	.058 [.053, .064]	.047	.002	.001
3: Scalar	.968	.967	.058 [.053, .064]	.048	.002	.000
4: Strict	.966	.967	.058 [.053, .063]	.048	.002	.000

Notes. Models 1 – 4 represent tests of configural, metric, scalar, and strict invariance, respectively. Models are considered invariant if they have good model fit (configural), and have a ΔCFI < 0.010 ΔRMSEA < 0.015.

2.6.2.2 Group differences Economic Thinking and Cultural Enrichment Beliefs

We investigated differences in economic thinking and cultural enrichment beliefs across gender, immigration status, and racialization using Welch's t-test to account for the uneven sample size and variances across groups. Descriptive and inferential statistics are summarized in Table 2.10. Overall, differences in attitudes across groups were small. In terms of gender, men scored higher on economic thinking, while women scored higher on

cultural enrichment beliefs, consistent with findings that women tend to have greater levels of cultural sensitivity than men (Cundiff & Komarraju, 2008). While there were no significant differences in cultural enrichment beliefs as a function of immigration status, we found that immigrants, relative to non-immigrants, were more likely to engage in economic thinking. Given the pro-economic narrative endorsed by the Canadian government, and the selection for economic migrants, these differences may reflect selection pressures where immigrants who believe that immigration should be beneficial to the economy are more likely to move to Canada. Lastly, while there were no differences in economic thinking between White and non-White Canadians, non-White Canadians scored higher on cultural enrichment beliefs.

Table 2.10 Average ETCEI Scores Across Gender, Immigration Status, and Racialization

		Economic Thinking		**Cultural Enrichment Beliefs**	
Groups	***n***	***M***	***SD***	***M***	***SD***
Gender					
Men	448	4.57	1.04	5.64	1.05
Women	485	4.10	1.17	5.88	0.99
		$t(929.54) =$	**6.52**	**$t(915.64) =$**	**-3.60**
		$p <$	**.001**	**$p <$**	**.001**
Immigration Status					
Immigrant	247	4.44	1.07	5.82	0.97
Non-immigrant	715	4.23	1.18	5.77	1.07
		$t(469.12) =$	**2.58**	**$t(456.48) =$**	**0.69**
		$p =$	**.010**	**$p =$**	**.491**
Racialization					
Non-White	394	4.34	1.04	5.89	0.88
White	568	4.25	1.22	5.71	1.11
		$t(924.27) =$	**1.25**	**$t(944.43) =$**	**2.84**
		$p =$	**.213**	**$p <$**	**.005**

Notes. Group differences in economic thinking and cultural enrichment beliefs assessed using Welch's t-test to account for unequal variances

2.6.3 Summary

Researchers are often interested in differences in attitudes across various demographic groups. For example, members of marginalized groups may have greater sympathy for people from other marginalized communities. For example, research has found that women tend to show greater cultural sensitivity and less likely to endorse ideologies associated with outgroup prejudices. Other immigrants and people of colour may similarly

have more positive attitudes towards diversity relative to non-immigrant and White Canadians, as individuals from these backgrounds tend to come from cultures that are dissimilar from the Canadian majority. At the same time, it is not clear whether immigrants would endorse economic thinking about immigration. While the economic thinking items prioritize the economic needs of Canada over the individual needs of immigrants, many immigrants in Canada are selected for their economic contribution and thus may in turn endorse economic thinking.

To properly assess these group differences, we need to establish that the items in our economic thinking and cultural enrichment beliefs subscales are measuring the same construct across groups. Looking at four types of measurement invariance, we find that our measure achieves strict invariance across all demographic groups examined—suggesting that the items are being interpreted similarly across these different populations, and that these items are tapping into similar constructs. Consistent with past research, we find that women and non-White Canadians tend to score higher on pro-diversity attitudes, such as the cultural enrichment beliefs scale. However, we did not find that immigrants scored higher than non-immigrants on cultural enrichment beliefs—instead they scored higher on economic thinking. Given that the Canadian government often frames immigration as an economic benefit, and that many immigrants are selected for their economic contribution, it is possible that immigrants are either inadvertently selected for these attitudes, or internalize these attitudes upon arriving in Canada. In future work, it may be interesting to investigate whether these attitudes change over time as immigrants spend more time in Canada, or if there are differences as a function of immigrant admission category.

2.7 Discussion

A new immigration attitude scale was developed assessing economic thinking about immigration and beliefs about cultural enrichment (see full item list in Table 2.8). An initial exploratory factor analysis of 48 items found evidence for a 4-factor structure consisting of feelings of ingroup threat, beliefs about cultural enrichment, free-movement values, and economic thinking about immigration, in an online U.S.-based sample. This study, however, was run during a time period where there was a concern over data quality on Amazon's Mechanical Turk, and in particular, concerns about automatic bot responses (Chmielewski et

al., 2020). Because of this, additional data screening measures were undertaken that may have over-excluded participant data. Additionally, many of the items of interest cross-loaded on multiple factors or were found to be excessively long upon further inspection. To address these issues, a second exploratory factor analysis was conducted using a Canadian-based Qualtrics panel to avoid the data quality issues on Mturk, and to test a new set of 44 items after expert review. In contrast to the first study, we did not find the same factor structure with the exploratory factor analysis. Because the sample (American vs Canadian) and items were different, it was possible that the items tapped into a different factor structure than the one originally discovered. Since my primary interest was on economic thinking about immigration and beliefs about cultural enrichment, we conducted another exploratory factor analysis using only items from those factors using the sample from Study 2. We then investigated the fit of this model by conducting a confirmatory factor analysis on both the Study 2 sample, and on the U.S.-based sample using similarly worded items.

Despite its tumultuous beginnings, the factor structure of the 17-item scale developed in Study 1 – 3 was cross-validated using confirmatory factor analysis in a novel sample on Prolific Academic. In addition, the scale showed good test-retest reliability over a two-week time point, suggesting that both economic thinking about immigration and beliefs about cultural enrichment were stable attitudes. Finally, the factor structure was further validated using another sample taken from two different datasets, finding that the scale's factor structure was invariant between men and women, immigrant and non-immigrant residents, and those who self-identify as monoracially White versus multiracial and non-White individuals. This suggests that the immigrant attitude scale is measuring the same construct across these groups, allowing for group-level comparisons.

Chapter 3

3 Convergent, Discriminant, and Criterion Validity

3.1 Study 6

The purpose of this chapter is to provide evidence that the Economic Thinking and Cultural Enrichment Beliefs about Immigration scale (ETCEI scale) developed in the previous chapter measures economic thinking and cultural enrichment beliefs about immigration. To do this, we focus on three types of validity: convergent, discriminant, and criterion validity. Convergent validity refers to the extent to which a scale is related with measures to which we expect it to relate (Hinkin, 1998; Hinkin et al., 1997). For example, because we are measuring attitudes towards immigrants, we should expect that scale should be associated with other measures of immigration attitudes and scales measuring constructs related to prejudice. Discriminant validity refers to the extent to which a scale does not correlate with measures to which it should not correlate (Hinkin, 1998; Hinkin et al., 1997). For example, while there are personality traits that are associated with prejudice and attitudes towards diversity, others are not. Thus, we should not expect our measure to be associated with personality traits unrelated to prejudice. Finally, criterion validity refers to the association between the scale and theorized outcome measures (Hinkin, 1998; Hinkin et al., 1997). In this context, economic thinking should be associated with preferences for immigrants who are seen as contributing to the economy, while cultural enrichment beliefs should be associated with preferences for culturally different immigrants. The predicted associations with various measures of ideology, personality, and attitudes are described below.

3.1.1 Zero-Sum Beliefs and Attitudes Towards Immigration

The impetus for developing a new measure of immigration attitudes was to develop a scale that was (1) not explicitly framed in terms of threat and competition and (2) to better dissociate between economic and cultural factors as existing scales assessing cultural and economic competition tend to be highly correlated. First, because the economic thinking and cultural enrichment scale are immigration attitudes more broadly, we expect them to be associated with existing measures of anti-immigration attitudes such as Esses et al.'s (2001)

Zero-sum Beliefs About Immigration scale. Specifically, because cultural enrichment beliefs measure pro-diversity attitudes, we expect cultural enrichment beliefs to be inversely associated with perceived zero-sum cultural competition (Esses, 2001), while being less associated with perceived zero-sum resource competition. The economic thinking about immigration items were written to not be explicitly negative or framed in terms of competition and so we do not expect it to be associated with zero-sum competition if economic thinking is not associated with prejudice.

To assess the extent to which the economic thinking and cultural enrichment beliefs are distinct from zero-sum thinking in general, we examine the association between these scales and Rozycka-Tran et al.'s (2015) Belief in Zero Sum Game scale. This scale assesses the extent to which people believe that the gains of others are at the expense of one's own, which is similar to how realistic and symbolic competition with immigrants are assessed (see Esses et al., 2001). Because the economic thinking and cultural enrichment scales were written to minimize zero-sum framing, and Rozycka-Tran et al.'s scale does not measure immigration attitudes specifically, we hypothesize that the economic thinking and cultural enrichment belief scales should not be associated with general beliefs in zero-sum games.

Finally, the scales were also developed to better distinguish between subcomponents of immigration attitudes—particularly economic thinking and cultural enrichment beliefs. As such, we expect economic thinking and cultural enrichment beliefs to be associated with each other because they both measure immigration attitudes, but for these correlations to be more moderate, reflecting distinct constructs (Hodson, 2021). Existing scales that decompose symbolic and realistic threat tend to be highly correlated with each other (Esses et al., 2003)— high correlation in these previous scales may be due to tapping into zero-sum thinking about immigration more specifically.

3.1.2 Ideological Predispositions

To the extent that attitudes towards immigration are associated with prejudice, we should expect that both economic thinking and cultural enrichment beliefs are associated with its ideological precursors. Specifically, this chapter focuses on social dominance orientation and right-wing authoritarianism. Social dominance orientation measures people's preferences for hierarchy, and is typically associated with perceiving groups as competitive

(Pratto et al., 1994). As such, we hypothesize that cultural enrichment beliefs should be negatively associated with social dominance orientation. Items on the cultural enrichment beliefs scale assess the extent to which people think immigration contributes to, rather than competes with, Canadian culture, which is antithetical to beliefs about competition. The association between economic thinking and social dominance orientation is more difficult to predict. On one hand, like cultural enrichment, economic thinking items are not inherently phrased in terms of competition, which may lead to negative to null associations. However, economic thinking was previously hypothesized to be associated with anti-immigrant prejudice more broadly, and items are phrased to prioritize the needs of the ingroup. Because of this, we hypothesize that economic thinking would be positively associated with social dominance orientation, partially because considerations of immigrants are in reference to the ingroups' wellbeing, thus placing ingroup concerns above those of immigrants. This would reflect hierarchical thinking where the needs of immigrants should be seen as second to the needs of the ingroup, in line with how social dominance orientation is constructed (Pratto et al., 1994).

People high in right-wing authoritarianism tend to view the world as more dangerous (Altemeyer, 1981), and thus are more worried about culturally different others. Conspiracy beliefs about White replacement in Europe—that the government is trying to replace a country's local White population with immigrants— for example, has been associated with right-wing authoritarianism (Obaidi et al., 2022). Given this association with right-wing authoritarianism and prejudice towards culturally dissimilar others, we hypothesize that cultural enrichment beliefs should be negatively associated with right-wing authoritarianism. With regards to economic thinking, while the items are not phrased in terms of threat or competition, nor does it specify immigrants from specific cultures, it may be reasonable to expect that this measure would also be positively associated with right-wing authoritarianism. Right-wing authoritarianism has been associated with a preference for stricter immigration policies (Craig & Richeson, 2014b). Since the shift in economic preferences for migration has been associated with stricter immigration for family-class migrants (Root et al., 2014), economic thinking may be associated with preferences for stricter immigration more broadly. In addition, focusing on the economic impacts of migration may be a more acceptable way to express prejudice. Thus, economic thinking may also be positively

associated with right-wing authoritarianism to the extent that responses to these items are seen as a socially acceptable way to express prejudice.

3.1.3 National Attachment

In addition to ideological factors, we also expect social identity processes, and in particular national attachment, to be associated with the economic thinking and cultural enrichment scales. We focus on three types of national attachment: nationalism, patriotism, and internationalism. Nationalism encompasses both social identity and social comparison processes, with those high in nationalism viewing their country both favourably *and* superior to others (Kosterman & Feshbach, 1989). Because of this, we hypothesize that nationalism is negatively associated with cultural enrichment beliefs, as those high in nationalism would see influences from other countries as detrimental to one's national identity. With regards to economic thinking, items on the scale prioritize the needs and wellbeing of the ingroup, and thus immigration should be viewed positively to the extent that it is seen as beneficial. People high in nationalism, however, tend to view immigrants as competition, harbouring more negative attitudes towards them (Esses, 2021). Additionally, people who harbour negative attitudes towards immigrants may be more likely to engage in motivated thinking about the adverse impacts of immigration on the economy (Tremewan 2009) and thus engage in economic thinking about immigration. To that end, we may expect a positive association with nationalism and economic thinking about immigrants.

In contrast to nationalism, patriotism refers to a person's (positive) attachment to their country, without reference to feelings of superiority to others (Kosterman & Feshbach, 1989), and has been associated with more positive attitudes towards immigrants (Esses, 2021). Though there are differences in the association between blind and constructive patriotism and anti-immigrant prejudice in countries like the United States (e.g., Willis-Esqueda et al., 2016), Canadians view themselves as living in a multicultural country and a country welcoming of immigrants. As such, part of their patriotic attitudes, regardless of whether blind or constructive, may also be associated with positive attitudes towards immigrants. Thus, we expect cultural enrichment beliefs to be positively associated with patriotism. Similarly, economic thinking about immigration frames immigration in terms of the needs of the ingroup, and thus may be thought of in terms of ingroup preference. Since

patriotism more broadly is about favourable attitudes towards the ingroup, we hypothesize that economic thinking is also positively associated with patriotism.

Lastly, internationalism refers to people's attitudes towards other countries. Specifically, Kosterman and Feshbach's (1989) scale assesses the extent to which people believe that their country is responsible for uplifting and redistributing resources to help other countries. This conceptualization is antithetical to the economic thinking about immigration, which focuses on using immigration to improve the economic situation of one's own country. Thus, we hypothesize that economic thinking and internationalism should be negatively associated. Cultural enrichment items focus on how immigration enriches Canadian culture, and thus may be associated with positive attitudes towards cultural exchange more broadly. We previously hypothesized that cultural enrichment would be negatively associated with social dominance orientation. Social dominance orientation, as a personality trait, consists of both preferences for hierarchy and desire to maintain inequality. As such, we hypothesize that cultural enrichment to be positively associated with internationalism to the extent that it is associated with values of group equality, and cross-country exchange more broadly.

3.1.4 Personality Traits

The dual-process cognitive-motivational theory of prejudice proposes that certain personality traits are associated with ideological traits, like social dominance orientation and right-wing authoritarianism, that predispose us to prejudice (Duckitt, 2001). Looking at the Big Five model of personality (Soto & John 2017), Sibley and Duckitt (2008) found that prejudice can be predicted by two primary dimensions: openness to experience and agreeableness. People high in openness to experience tend to be intellectually curious, imaginative, and enjoy new experiences. People high on agreeableness have a high willingness to compromise and value getting along with others.

Personality traits are not thought to affect prejudice directly, but rather indirectly through right-wing authoritarianism and social dominance orientation (Sibley & Duckitt, 2008). For example, people low on openness to experience would value existing social order and are thus predisposed to values associated with right wing authoritarian personality. Those low in agreeableness are more hedonistic and are less considerate of other people in

their goal-pursuits, making them more "tough-minded" and more likely to score high on social dominance orientation (Sibley & Duckitt, 2008). In addition to these personality traits, right-wing authoritarianism was also weakly associated with high conscientiousness (Sibley & Duckitt, 2008)—a trait that measures the extent to which people are self-disciplined and dutiful. Social dominance orientation was also weakly correlated with low openness to experience.

Similar results have also been found looking at other models of personality like the HEXACO (Ashton & Lee, 2009). The HEXACO (**H**onesty-humility, **E**motionality, e**X**traversion, **A**greeableness, **C**onscientiousness, and **O**penness to Experience) differs from the Big Five personality in two ways relevant to prejudice. First, HEXACO has a sixth factor, honesty-humility, which measures people's tendency to be fair and genuine towards others (Ashton & Lee, 2009). Because past research has found that people high on this trait were less open to change (similar to right-wing authoritarianism) and were more self-transcendent (opposite of those high in social dominance orientation) (Lee et al., 2009), Sibley et al. (2010) predicted that honesty-humility would be positively associated with right-wing authoritarianism and negatively associated with social dominance orientation.

The second difference between HEXACO and the Big Five is how emotionality and agreeableness are conceptualized compared to neuroticism (also known as negative emotionality) and agreeableness. For example, propensity towards anger is seen as a feature of people low in agreeableness in the HEXACO model, while it is seen as a feature of people high in (negative) emotionality in the Big Five. Similarly, feelings of sentimentality are seen as facets of emotionality in HEXACO, but not in the Big Five's neuroticism equivalent. Because of this, Sibley et al., predicted that rather than agreeableness, emotionality in the HEXACO model would be associated with social dominance orientation. Sibley et al.'s (2010) analysis of HEXACO personality traits found that people low in openness to experience tended to score higher on right-wing authoritarianism. Similarly, low emotionality and low openness to experience was associated with higher social dominance orientation. Consistent with their hypotheses, agreeableness in the HEXACO model was not associated with social dominance orientation because propensity towards anger was no longer a facet of this trait. Finally, they also found that honesty-humility was positively associated with right-wing authoritarianism and negatively associated with social dominance orientation.

Given personality's indirect effects on prejudice through ideological traits like right-wing authoritarianism and social dominance orientation, we hypothesize similar associations with economic thinking and cultural enrichment beliefs. Duckitt's (2001) dual process cognitive-motivational theory suggests that personality traits are *indirectly* associated with attitudes through ideological pre-dispositions like social dominance orientation and right-wing authoritarianism. In the previous section, we hypothesized how economic thinking would be associated with social dominance orientation because the construct prioritizes immigration for ingroup benefit. As such, we similarly hypothesize that those who engage in economic thinking would be characterized by similar personality traits as those high in social dominance orientation. More specifically, honesty-humility assesses, in part, the extent to which people are willing to take advantage of others, while emotionality assesses, in part, the extent to which people feel concern for the wellbeing of others (Ashton & Lee, 2009). Given that economic thinking, as a construct, prioritizes thinking about immigration in terms of economic impact over other concerns like family reunification, we hypothesize that economic thinking should be associated with low honesty-humility and low emotionality. Similarly, as economic thinking is not concerned with learning about immigrants and their cultures, we also hypothesize that it would be inversely associated with openness to experience as those high in this trait are characterized by inquisitiveness and a desire to seek out new experiences.

Similar to economic thinking, we hypothesize that those who hold cultural enrichment beliefs would be characterized by similar personality traits as those low in right-wing authoritarianism and social dominance orientation. In the previous section, cultural enrichment beliefs were hypothesized to be inversely associated with social dominance orientation because it measures the extent to which people believe immigrants contribute to, rather than compete with, Canadian culture. Social dominance orientation is inversely associated with honesty-humility, emotionality, and openness to experience because these personality traits are associated with fairness, feeling concern for others, and appreciating difference. Honesty-humility may or may not be correlated with cultural enrichment beliefs. On one hand, honesty-humility is associated with lower openness to experience, but on the other it is also associated with fairness and caring about others. Thus, we hypothesize that cultural enrichment beliefs would be associated with high emotionality and openness to

experience because those who endorse these beliefs are less likely to want to take advantage of culturally dissimilar others, and instead would wish to engage with people from different cultures.

Finally, we hypothesize there to be no association with HEXACO agreeableness, extraversion, and consciousness as these personality traits were not found to be associated with prejudice (Sibley et al., 2010). Though Big Five conscientiousness has been found to be associated with right-wing authoritarianism in past studies, these associations tended to be weak (Sibley & Duckitt, 2008) or unrelated (Sibley et al., 2010; Sibley & Duckitt, 2010).

3.1.5 Migrant and Ethnic Preferences

To establish criterion validity, we examine how economic thinking and cultural enrichment beliefs about immigration influence preferences towards different types of immigrants and ethnic groups. In Canada, there are three main admission categories in which immigrants can enter the country ("Classification of admission category", 2022). Economic migrants are those who are selected for permanent residency due to their perceived ability to contribute to the Canadian economy. Family class migrants are relatives of Canadian citizens or permanent residents who are sponsored by their family for permanent residency. Lastly, refugees are those who are granted permanent residency in Canada based on a "well-founded fear of returning to their home country" which includes persecution for their race, religion, political membership, or nationality ("Classification of admission category", 2022). In addition, Canada also allows employers to recruit temporary foreign workers to fill labour shortages when there are no Canadians available to fill the job (Government of Canada2022) and allows post-secondary institutions to recruit international students to pursue higher education.

Given these definitions, we hypothesize that those who score high on economic thinking should have less restrictive attitudes for the admission of economic migrants relative to all other types of immigrants. Though temporary foreign workers are recruited to work in Canada and can range in skill level, media coverage typically highlight corporate exploitation of "low skilled" temporary foreign workers (Lange et al., 2022). As such, the overwhelming perception of temporary foreign workers may be that they are "low skilled" and thus may not be seen as equally preferable compared to economic migrants. Similarly,

while international students are poised to become "skilled migrants" by the government's definition, they are not guaranteed to stay in Canada and may be seen as competition for scarce economic resources (i.e., spots in university). Thus, while those who endorse economic thinking may prefer temporary foreign workers and international students compared to family class migrants and refugees, attitudes towards them may be less positive compared to economic migrants. Lastly, negative attitudes towards refugees stem in part from perceptions of refugees "taking advantage" of a country's social safety net (Lawlor & Tolley, 2017). Thus, we hypothesize that those high on economic thinking would want to restrict the migration of refugees most, relative to other immigrant groups. Given that migrants from these different admission categories tend to come from a variety of countries, we do not expect any preferences as a function of cultural enrichment beliefs.

In addition to immigrant type, we also expect economic thinking and cultural enrichment to be differently associated with attitudes towards different ethnic groups more broadly. Given that cultural enrichment beliefs measure the extent to which people believe immigrants enrich life in Canada through cultural contribution, we expect those higher in cultural enrichment beliefs to have more positive attitudes towards non-White individuals compared to those lower in cultural enrichment beliefs—though we do not predict any differences in preference across groups. In contrast, we expect economic thinking to moderate preferences in line with stereotypes of economic success. For example, East Asian individuals tend to be viewed as more economically successful and stereotyped to be highly competent relative to other ethnic or racial groups (Bu & Borgida, 2020). Similarly, the model minority myth was constructed to contrast East Asians as "hard working" and "successful" relative to Black individuals to delegitimize claims of systemic discrimination (Poon et al., 2016). Thus, we predict high endorsement of economic thinking to be associated with greater preferences for East Asian individuals relative to other racial / ethnic minority groups.

3.2 Methods

3.2.1 Participants

This study is part of a larger 2-wave project to validate scales on immigration attitudes and political opinions. The validation of the immigration attitudes scale was

reported in Chapter 2, section 2.5, to cross-validate the factor structure and assess test-retest reliability. Participants currently residing in Canada were recruited for a 15 to 20-minute study on social attitudes in August 2020. N = 507 participants (M_{age} = 30.8 years, SD_{age} = 10.4 years) were recruited for the first wave of the study. There were approximately an equal number of men and women who participated in this study (277 men, 220 women, 7 another gender identity, 3 did not wish to respond), with the majority of the participants identifying as White (58.4%) and born in Canada (81.9%). Two weeks after data collection was completed for wave 1, participants were invited to participate in the second wave of the survey. Retention rate was 85%, with N = 438 participants (M_{ag} = 30.8 years, SD_{age} = 10.2 years) returning for the second wave of the survey. The majority of the returning participants were men (249 men, 180 women, 7 another gender identity, and 2 who did not wish to identify their gender) who identified as White (67.6%) and born in Canada (94.8%). Participants were compensated £2.15 for each session.

3.2.2 Materials and Procedure

3.2.2.1 Wave 1

Canadian residents who were 18 years of age or older on Prolific Academic's survey panel were invited to participate in a study assessing people's attitudes towards various social issues. After consenting to the study, participants were first presented with a survey assessing economic thinking (ETI; 6 items, α = .86) and cultural enrichment beliefs about immigration (CEI; 11 items, α = .95)[3].

After completing the ETCEI scale, participants were presented with a set of scales assessing their political attitudes and zero-sum beliefs. The first scale was the 16-item SDO_7 scale (Ho et al., 2015) to assess social dominance orientation. Social dominance orientation was split into two subscales assessing dominance (SDO-D, 8 items, α = .82)—the preference that some groups should be in greater positions of power than others (e.g., "Some groups of people are simply inferior to other groups") and anti-egalitarianism (SDO-E, 8 items, α =

[3] Participants were also presented an unrelated survey on political attitudes for a separate dissertation project (https://ir.lib.uwo.ca/etd/8449). Presentation order was randomized between the two sets of scales.

.90)—the preference against mitigating inequality (e.g., "Group equality should not be our primary goal"). The second scale assessed right-wing authoritarianism (RWA) using Altemeyer's (1981) 20-item scale (α = .94; "What our country really needs is a strong, determined leader who will crush evil, and take us back to our true path.") The third scale assessed zero-sum beliefs about immigration (Esses et al., 2001). This survey can be split into two subscales assessing zero-sum beliefs about resources (α = .95, 15 items, "Educational opportunities for immigrants means fewer spots and opportunities for Canadians already living here") and culture (α = .93, 15 items; "The values held by immigrants are not incompatible with Canadian values." – reverse scored). Finally, participants completed a scale assessing their general beliefs that the world is competitive using Różycka-Tran et al.'s (2015) 12-item beliefs in zero-sum game scale (α = .81; "Successes of some people are usually failures of others.)[4], followed by the debriefing page. An attention check question was asked in both the first and last survey blocks of the study, asking participants to select a particular response (e.g., "agree). The first three scales after the ETCEI scale were presented in random order, and all participants completed the Beliefs in Zero Sum Game scale last. Apart from RWA, all scales were assessed using a 7-point scale ranging from 1 (strongly disagree) to 7 (strongly agree). The RWA scale was assessed on a 9-point scale ranging from 1 (very strongly disagree) to 9 (very strongly agree).

3.2.2.2 Wave 2

Two weeks after data collection for the first wave was complete, all participants who participated in the first wave were invited back to complete another survey. After providing consent, participants completed the immigration attitude survey consisting of 6 items assessing economic thinking (ETI, α = .88) and 11 items assessing cultural enrichment beliefs (CEI, α = .97) about immigration[5].After completing the ETCEI scale, participants' personalities were assessed using Lee and Ashton's (2009) 60-item HEXACO questionnaire. Participants were asked the extent to which they agreed or disagreed with various statements about themselves on a 5-point scale ranging from 1(strongly disagree) to 5 (strongly agree). The HEXACO consists of six subscales assessing broad personality traits such as honesty-

[4] Participants also completed an unrelated 8-item survey on the Canadian housing market prior to debriefing.
[5] Similar to Wave 1, participants also completed an unrelated survey on political attitudes.

humility (H; "I wouldn't use flattery to get a raise or promotion at work, even if I thought it would succeed"; α = .71), emotionality (E; "I would feel afraid if I had to travel in bad weather conditions."; α = .80), extraversion (X; "I feel reasonably satisfied with myself overall."; α = .84), agreeableness (A; "I rarely hold a grudge, even against people who have badly wronged me." ; α = .79), conscientiousness (C; "I plan ahead and organize things, to avoid scrambling at the last minute."; α = .80), and openness to experience (O; "I would be quite bored by a visit to an art gallery"; α = .80).

National attachment was assessed afterwards using Kosterman and Feshbach's (1989) 29-item scale. The scale is split into three subscales. The first subscale assesses nationalism (8 items; α =.83)—the extent to which people feel their country is superior to others (e.g., "Other countries should try to make their government as much like ours as possible."). The second subscale assesses patriotism (12 items, α = .91)—the extent to which one feels positive about their country (e.g., "Although at time, I may not agree with the government, my commitment to Canada always remains strong."). Lastly, internationalism (9 items, α = .84) assesses the extent to which people feel their country should help other countries around the world (e.g., "I would not be willing to decrease my living standard by ten percent to increase that of persons in poorer countries of the world."). Participants responded on a 7-item scale ranging from 1 (strongly disagree) to 7 (strongly agree).

The final set of questions, presented in randomized order, assessed participants' preferences towards different types of immigrants and their feelings towards various ethnic groups[6]. Preference towards different immigrant types was assessed by asking participants the extent to which they think the Canadian government should increase or decrease migration on a 7-point scale (1 = decrease a lot, 4 = keep the same, and 7 = increase a lot) towards economic migrants, family-reunification migrants, international students, temporary foreign workers, and refugees. Ethnic prejudice was assessed using a single-item 101-point thermometer type scale. Participants were instructed to think of their attitudes towards various ethnic or racial groups (i.e., White and/or European; Black and/or African; East

[6] An additional set of political participation questions was presented either before or after this block (randomized between participants) for a separate study validating a political attitude measure.

Asian; South Asian; First Nations or Aboriginal peoples; Middle Easterners; Latin Americans) in terms of a thermometer where scores between 50 to 100 indicate positive attitudes and 0 to 50 indicate negative attitudes, with higher scores indicating more favourable attitudes. All target groups were presented at once to elicit social comparison processes.

3.3 Results

3.3.1 Data Cleaning

As mentioned in the previous chapter, participants who did not complete the immigrant attitude scale were removed from both datasets. In addition to removing participants who failed the attention check in the immigration attitude survey block, participants were also removed for failing an attention check in the last survey block. Lastly, participants who sped through all questions (i.e., spent less than 2 seconds per item on average) were removed from the analysis as per recommendations (Huang et al., 2012). The final sample size for wave 1, which was used to examine convergent and discriminant validity with zero-sum beliefs about immigration (Esses et al., 2001) and more broadly (Różycka-Tran et al., 2015), along with ideological predispositions (RWA, Altemeyer, 1981; SDO, Ho et al, 2015), was $N = 420$. The final sample for wave 2, which was used to assess convergent and discriminant validity with personality traits (Ashton & Lee, 2009) and national attachment (Kosterman & Feshbach, 1989), as well as criterion validity with immigration and ethnic preferences, was $N = 395$. Item scores were calculated using the psych package (Revelle, 2022) in R by averaging scores across items in each scale. Missing data were imputed by replacing missing values with the median score across items. Correlation matrices were produced using the apaTables package (Stanley, 2021)

3.3.2 Zero-Sum Beliefs

The zero-order correlations between cultural enrichment (CEI) and economic thinking (ETI) about immigration, zero-sum beliefs about immigration related to resources (ZSB-R) and culture (ZSB-C), and general beliefs in zero-sum game (BZSG) are summarized in Table 3.1. Consistent with the goal to develop a scale that better distinguished cultural and economic factors influencing immigration attitudes, we found that cultural enrichment

beliefs and economic thinking about immigration were moderately correlated. This was much lower in magnitude than the correlation between zero-sum beliefs about immigration related to resources and culture.

We also found evidence that the newly developed scale was more independent of general zero-sum thinking. Economic thinking about immigration was not significantly associated with general zero-sum thinking. In contrast, resource-based zero-sum thinking about immigration was significantly correlated. The associations between general zero-sum thinking and cultural enrichment beliefs and culture-based zero-sum thinking about immigration were similar in magnitude, albeit in different directions.

Lastly, we found significant correlations with cultural enrichment beliefs, economic thinking, and zero-sum beliefs about immigration. Cultural enrichment beliefs were strongly and negatively associated with zero-sum beliefs about immigration related to resources (and culture. Economic thinking was strongly (albeit less than cultural enrichment beliefs) and positively correlated with zero-sum beliefs about immigration related to resources and culture. Both cultural enrichment beliefs and economic thinking about immigration were equally associated with cultural and resource-based zero-sum thinking about immigration, suggesting that perceived realistic and symbolic competition may influence both those attitudes, and that thinking about immigration may elicit domain-specific zero-sum thinking. Additionally, although the correlations between economic thinking and cultural enrichment beliefs with zero-sum resources and zero-sum culture were high (i.e., $|r| \geq .59$), the correlations between economic thinking and cultural enrichment beliefs about immigration were lower than the correlations between zero-sum resources and zero-sum culture.

Table 3.1 Descriptive Statistics and Correlations Between ETCEI and Zero-Sum Beliefs

Variable	*M*	*SD*	1	2	3	4
1. CEI	5.80	0.98				
2. ETI	4.52	1.22	-.48** [-.55, -.40]			
3. ZSB-R	2.75	1.26	-.71** [-.75, -.66]	.59** [.53, .65]		
4. ZSB-C	2.53	1.12	-.74**	.59**	.86**	

Variable	*M*	*SD*	1	2	3	4
			[-.78, -.69]	[.52, .65]	[.83, .88]	
5. BZSG	4.03	1.07	-.13**	.09	.21**	.11*
			[-.22, -.03]	[-.01, .18]	[.12, .30]	[.02, .21]

Note. Data for the correlation matrix taken from wave 1 of the survey. CEI and ETI represent cultural enrichment beliefs and economic thinking about immigration, respectively. ZSB-R and ZSB-C represent zero-sum beliefs about immigration (Esses et al., 2001) with regards to resources and culture, respectively. BZSG represents beliefs in zero-sum game more broadly (Różycka-Tran et al., 2015). Values in columns 1 – 4 represent each row's zero-order correlations with each row (1 – 5), with values in square brackets representing the 95% confidence interval for each correlation. * indicates $p < .05$, ** indicates $p < .01$.

3.3.3 Ideological Pre-disposition

Zero-order correlations between cultural enrichment beliefs (CEI) and economic thinking (ETI) about immigration, social dominance orientation (dominance, SDO-D; anti-egalitarian, SDO-E), and right-wing authoritarianism (RWA) are summarized in Table 3.2. Consistent with the hypotheses, cultural enrichment beliefs were moderately and negatively correlated with both subdomains of social dominance orientation and right-wing authoritarianism. Economic thinking about immigration was moderately and positively associated with both sub-domains of social dominance orientation and right-wing authoritarianism at. Though we expected the correlations with SDO, there were competing hypotheses with RWA. On one hand, we expected either weaker or no association with RWA and economic thinking because the former is more associated with cultural threat and feelings of danger. On the other hand, policy shifts focusing on economic migration has usually resulted in restriction of immigration in other domains (Root et al., 2014). Right-wing authoritarianism has been associated with preferences for stricter immigration policies (Craig & Richeson, 2014b) and expressing xenophobic attitudes in terms of economic concern may be a more acceptable way to express prejudice. Though past research has found that RWA was associated with more negative attitudes towards economically competitive migrants (Duckitt & Sibley, 2010), the scale was developed to minimize emphasis on competition. However, as we see in the previous section, economic thinking seems to be moderately and inversely correlated with cultural enrichment beliefs, and strongly and positively associated with zero-sum beliefs about immigration regardless of whether it is about culture or resources. This suggests that responses on the economic thinking scale may reflect symbolic, in addition to realistic, concerns about immigration.

Table 3.2 Descriptive Statistics and Correlations Between ETCEI and Ideology

Variable	*M*	*SD*	1	2	3	4
1. CEI	5.80	0.98				
2. ETI	4.52	1.22	-.48** [-.55, -.40]			
3. SDO-D	2.39	1.04	-.44** [-.52, -.36]	.44** [.36, .52]		
4. SDO-E	2.38	1.21	-.52** [-.59, -.45]	.51** [.43, .57]	.75** [.70, .79]	
5. RWA	2.97	1.37	-.42** [-.49, -.34]	.51** [.44, .58]	.56** [.49, .63]	.54** [.46, .60]

Note. Data for the correlation matrix taken from wave 1 of the survey. CEI and ETI represent cultural enrichment beliefs and economic thinking about immigration, respectively. SDO-D and SDO-E represent the dominance and anti-egalitarian subscales of the social dominance orientation scale, respectively. RWA represents beliefs in zero-sum game more broadly. Values in columns 1 – 4 represent each row's zero-order correlations with each row (1 – 5), with values in square brackets representing the 95% confidence interval for each correlation. * indicates $p < .05$, ** indicates $p < .01$.

3.3.4 National Attachment

Zero-order correlations between cultural enrichment beliefs, economic thinking, and national attachment are summarized in Table 3.3. Consistent with our hypotheses, cultural enrichment beliefs were negatively associated with nationalism and positively associated with internationalism. Similarly, economic thinking was positively associated with patriotism and nationalism, and negatively associated with internationalism, consistent with the hypothesis. Interestingly cultural enrichment beliefs were only weakly associated with nationalism, and were not at all associated with patriotism, contrary to predictions. Though we hypothesized that patriotism should be associated with cultural enrichment beliefs because Canadian national identity is tied to welcoming immigration, there may be variation in how this national identity is construed. For example, past research has found that, similar to Americans, Canadians also associate being Canadian with being White (Semenya, 2001). Additionally, a recent Ipsos poll has found that approximately 37% of their respondents viewed immigration to be a threat to White Canadians (Abedi, 2019). Thus, while the most popular depiction of Canadian identity is that of *welcoming immigrants*, others may view Canadian identity in terms of White Canadian identity. Since the scale did not distinguish between these potential definitions, it may explain why there was no relationship between cultural enrichment beliefs and patriotism.

These findings suggest that economic thinking about immigration is associated with positive feelings about the ingroup (i.e., high patriotism and nationalism) and the belief that resources should be concentrated for ingroup benefit (high nationalism, low internationalism). Conversely, cultural enrichment beliefs seem to be associated with beliefs that one's country is not superior to others (low nationalism) and that their country should help others (high internationalism).

Table 3.3 Descriptive Statistics and Correlations Between ETCEI and National Attachment

Variable	*M*	*SD*	1	2	3	4
1. CEI	5.85	1.02				
2. ETI	4.65	1.21	-.45** [-.53, -.37]			
3. Patriotism	4.89	1.03	.01 [-.09, .11]	.30** [.21, .39]		
4. Nationalism	3.59	0.99	-.16** [-.26, -.07]	.35** [.26, .43]	.56** [.49, .63]	
5. Internationalism	4.57	1.07	.66** [.60, .71]	-.59** [-.65, -.52]	-.18** [-.27, -.08]	-.26** [-.35, -.17]

Note. Data for the correlation matrix taken from wave 2 of the survey. CEI and ETI represent cultural enrichment beliefs and economic thinking about immigration, respectively. Values in columns 1 – 4 represent each row's zero-order correlations with each row (1 – 5), with values in square brackets representing the 95% confidence interval for each correlation. Two items from the internationalism scale were dropped due to low correlations with the other items in the scale, lowering reliability below acceptable levels. * indicates $p < .05$, ** indicates $p < .01$.

3.3.5 Personality

Zero-order correlations between cultural enrichment beliefs and economic thinking about immigration with HEXACO personality traits are summarized in Table 3.4. Due to the large number of correlations, the table is limited only to correlations between the immigration attitudes and personality traits. The full correlation matrix can be found in Appendix A. Reflecting personality's indirect associations with prejudice (Sibley & Duckitt, 2008; Sibley et al., 2010), cultural enrichment beliefs were positively associated with honesty-humility, emotionality, and openness to experience, and were not associated with extraversion and conscientiousness. Similarly, economic thinking was negatively associated with honesty-humility, emotionality, and openness to experience, but not with extraversion

and conscientiousness. Contrary to the hypothesis, cultural enrichment beliefs were positively, and economic thinking was negatively, associated with agreeableness—though the overall magnitude of association was weak at $r = .11$. Taken together, the personality profiles for those who endorse cultural enrichment beliefs and those who endorse economic thinking about immigration appear to reflect those who tend to hold lower versus higher levels of outgroup prejudice.

Table 3.4 Descriptive Statistics and Correlations Between ETCEI and HEXACO

Variable	*M*	*SD*	1	2
1. CEI	5.85	1.02		
2. ETI	4.65	1.21	-.45** [-.53, -.37]	
3. Honesty-Humility	3.45	0.59	.17** [.08, .27]	-.20** [-.29, -.10]
4. Emotionality	3.33	0.65	.22** [.12, .31]	-.25** [-.34, -.15]
5. Extraversion	2.85	0.70	-.06 [-.16, .04]	.10 [.00, .19]
6. Agreeableness	3.16	0.61	.11* [.01, .21]	-.11* [-.20, -.01]
7. Conscientiousness	3.65	0.58	.01 [-.09, .11]	.05 [-.05, .15]
8. Openness	3.55	0.66	.26** [.17, .35]	-.29** [-.38, -.20]

Note. Data for the correlation matrix taken from wave 2 of the survey. CEI and ETI represent cultural enrichment beliefs and economic thinking about immigration, respectively. Values in square brackets representing the 95% confidence interval for each correlation. * indicates $p < .05$, ** indicates $p < .01$.

3.3.6 Migrant Preferences

To establish criterion validity, we examined how cultural enrichment beliefs and economic thinking moderated people's restrictive attitudes (i.e., the extent to which they wanted to increase or decrease migration) for the immigration of different migrant groups as a function of admission category. The effects were modeled with a linear mixed effects

model using the lmer package in R (Bates et al., 2015), with targets (i.e., the various migrant groups) clustered within participants, and a cross-level interaction specified between target group and economic thinking / cultural enrichment beliefs. There were not enough observations to estimate the random slopes for migrant target groups, so they were left out of the model. There was a significant interaction of target admission category and economic thinking, $F(4, 1640) = 22.33$, $p < .001$, and a significant interaction of target admission category and cultural enrichment beliefs, $F(4, 1640) = 3.22$, $p < .012$. Simple slopes were examined using the emmeans package (Lenth, 2022) following the recommendations of Aiken and West (1991). That is, we compared people's ratings of target groups at lower (–1 SD) and higher (+1 SD) levels of economic thinking and low and high levels of cultural enrichment beliefs. Figure 3.1 visualizes the estimated marginal means and standard errors of people's preferences at low and high levels of economic thinking and cultural enrichment beliefs, while Table 3.5 summarizes the pairwise comparisons across groups.

As we can see in both Figure 3.1 and Table 3.5 the effect of economic thinking on immigration preferences is largely driven by a desire to reduce immigration of non-economic migrants. Specifically, there were no significant differences among those scoring lower or higher in economic thinking on preferences to increase or decrease migration of economic migrants. However, those who scored higher on economic thinking had more restrictive attitudes towards migration for family class migrants, refugees, temporary foreign workers, and international students, compared to those who scored lower on economic thinking. There were no differences in preferences between groups among those who score high in economic thinking, except for people's attitudes towards international students and refugees. Those who score high on economic thinking had more restrictive migration preferences for refugees relative to international students.

Among those who score lower in economic thinking, there were no differences in preferences for the migration of economic or family class migrants. However, those who score lower in economic thinking had more restrictive attitudes towards refugees, relative to economic migration, but less restrictive attitudes compared to the migration of temporary foreign workers and international students. There were no differences in preferences between the migration of refugees and family class migrants.

Compared to economic thinking, cultural enrichment beliefs was characterized by an overall preference to increase migration. Specifically, those who score higher in cultural enrichment beliefs were more likely to prefer increasing migration across all admissions categories relative to those who score low in cultural enrichment beliefs. Contrary to our hypothesis that cultural enrichment beliefs did not moderate preferences between admission groups; those who score high on cultural enrichment beliefs had less restrictive preferences for the migration of economic migrants relative to temporary foreign workers and international students. Additionally, those scoring high on this measure also had less restrictive preferences for the migration of family class migrants and refugees compared to temporary foreign workers, but not international students. On the other hand, those scoring low in cultural enrichment beliefs showed no preferences across admission categories.

Importantly, these patterns suggest that the economic thinking and cultural enrichment belief scales are not just measuring opposite ends of the same construct. For example, those low in economic thinking still preferred economic migrants to refugees, while there were no significant differences in preferences between economic migrants and refugees among those high in cultural enrichment beliefs. Similarly, while both high economic thinking and low cultural enrichment beliefs were characterized by a desire to decrease immigration, only low cultural enrichment beliefs were associated with more restrictive migration preferences towards economic migrants. This suggests that low cultural enrichment beliefs are associated with a dislike for immigration more generally, while high economic thinking may be associated with a dislike for immigration for those they believe would be a greater economic burden.

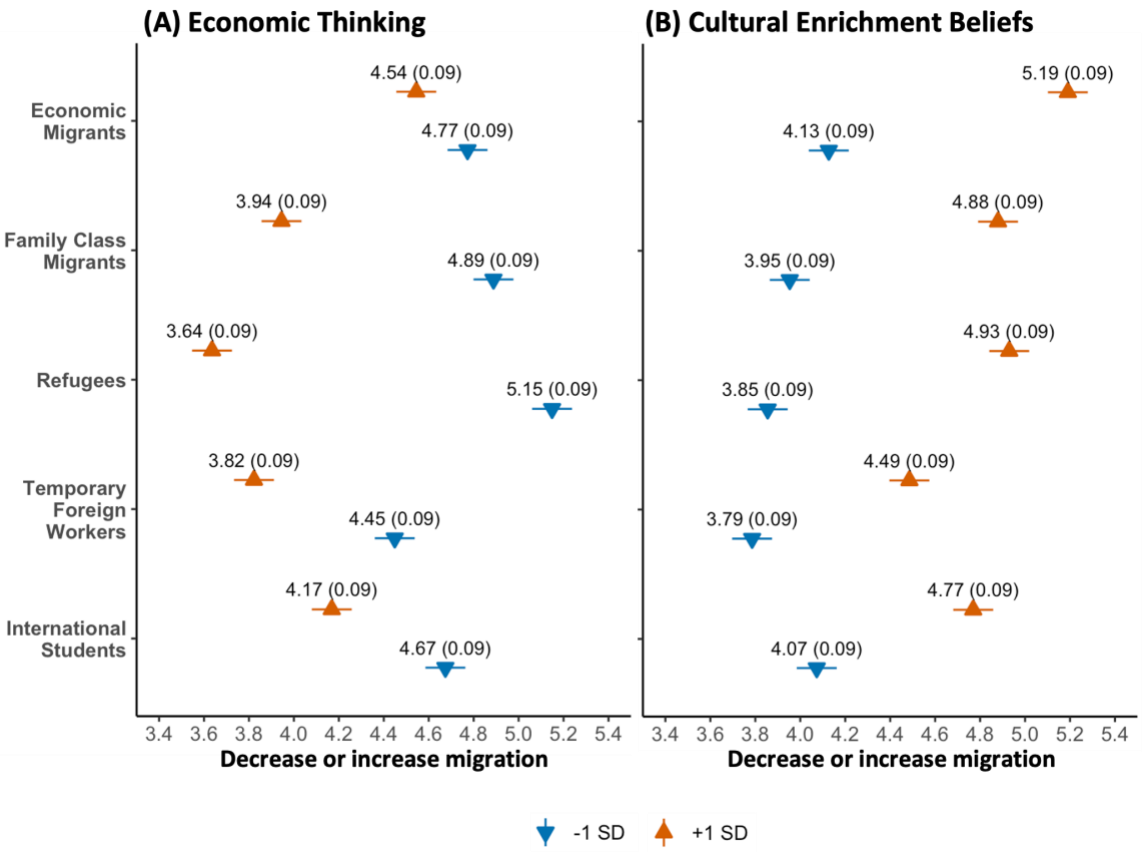

Figure 3.1 Preference Towards Different Migrant Groups Across Attitude Level

Notes. Scores represent estimated marginal means (standard errors) at low (–1 SD) and high (+1 SD) levels of (A) economic thinking or (B) cultural enrichment beliefs.

Table 3.5 Pairwise Comparisons for Preferences Towards Different Migrant Groups

	Economic Thinking				Cultural Enrichment Beliefs			
Contrasts	M_D	*SE*	*t*	p_{adj}	M_D	*SE*	*t*	p_{adj}
Within Targets								
High - Low Moderator								
Economic Migrants	-0.23	0.13	1.72	.782	1.06	0.13	8.04	<.001
Family Class Migrants	-0.94	0.13	7.13	<.001	0.93	0.13	7.00	<.001
Refugees	-1.51	0.13	11.44	<.001	1.07	0.13	8.12	<.001
Temporary Foreign Workers	-0.63	0.13	-4.73	<.001	0.70	0.13	5.29	<.001
International Students	-0.51	0.13	-3.82	.005	0.70	0.13	5.26	<.001

	Economic Thinking				Cultural Enrichment Beliefs			
Contrasts	M_D	*SE*	*t*	p_{adj}	M_D	*SE*	*t*	p_{adj}
Across Targets								
High level Moderator								
Economic Migrants –								
Family Class Migrants	0.60	0.10	6.07	<.001	0.31	0.10	3.15	.054
Refugees	0.91	0.10	9.20	<.001	0.26	0.10	2.64	.200
Temporary Foreign Workers	0.72	0.10	7.31	<.001	0.70	0.10	7.14	<.001
International Students	0.38	0.10	3.81	.006	0.42	0.10	4.26	<.001
Family Class Migrants –								
Refugees	0.31	0.10	3.13	.056	-0.05	0.10	0.50	1.000
Temporary Foreign Workers	0.12	0.10	1.24	.966	0.39	0.10	3.99	.003
International Students	-0.22	0.10	2.27	.412	0.11	0.10	1.12	.983
Refugees –								
Temporary Foreign Workers	-0.19	0.10	1.89	.675	0.44	0.10	4.50	<.001
International Students	-0.53	0.10	5.40	<.001	0.16	0.10	1.62	.837
Temporary Foreign Workers –								
International Students	-0.35	0.10	3.50	0.35	-0.28	0.10	2.87	.114
Low level moderator								
Economic Migrants –								
Family Class Migrants	-0.12	0.10	-1.17	.977	0.17	0.10	1.76	.761
Refugees	-0.38	0.10	-3.81	.006	0.27	0.10	2.75	.154
Temporary Foreign Workers	0.32	0.10	3.28	.036	0.34	0.10	3.45	.020
International Students	0.10	0.10	1.00	.992	0.05	0.10	0.54	1.000
Family Class Migrants –								
Refugees	-0.26	0.10	-2.64	.200	0.10	0.10	0.99	.993
Temporary Foreign Workers	0.32	0.10	3.28	.036	0.17	0.10	1.70	.798
International Students	0.21	0.10	2.17	.480	-0.12	0.10	-1.22	.970
Refugees –								
Temporary Foreign Workers	0.70	0.10	7.09	<.001	0.07	0.10	0.70	1.000
International Students	0.47	0.10	-4.81	<.001	-0.22	0.10	2.21	.450

	Economic Thinking				Cultural Enrichment Beliefs			
Contrasts	M_D	*SE*	*t*	p_{adj}	M_D	*SE*	*t*	p_{adj}
Temporary Foreign Workers – International Students	-0.23	0.10	2.28	0.23	-0.29	0.10	2.91	.103

Note. M_D refers to the mean differences across comparisons groups. Comparisons follow recommendations by Aiken & West (1991) to examine simple slopes at –1 SD (low) and +1 SD (high) of the average score for economic thinking and cultural enrichment beliefs. Positive values indicate greater preference for the reference group relative to the comparison; negative values indicate greater preference for the comparison group relative to the reference. P-values are Tukey's HSD corrected for multiple comparisons.

3.3.7 Ethnic / Racial Preferences

Criterion validity was further examined by looking at how economic thinking and cultural enrichment beliefs moderated people's preferences, as measured by a feeling thermometer, towards various racial and ethnic groups. A linear mixed effects model was constructed using the lmer package in R (Bates et al., 2015), where targets (i.e., the various racial and ethnic groups) were clustered within participants, with a cross-level interaction specified between target group and economic thinking / cultural enrichment beliefs. There were not enough observations to estimate the random slopes of the target group, and so it was left out of the model. There was a significant interaction between the target's racial or ethnic group and economic thinking, $F(6, 2454) = 10.80$, $p < .001$, as well as between the target's racial or ethnic group and cultural enrichment beliefs, $F(6, 2454) = 19.07$, $p < .001$. Simple slopes were probed following recommendations by Aiken and West (1991), where differences in people's attitudes towards various racial and ethnic groups were examined for participants at lower (–1 SD) and higher (+1 SD) levels of economic thinking and cultural enrichment beliefs. Figure 3.2 visualizes the estimated marginal means and standard errors of people's feelings towards the various racial and ethnic groups at low and high levels of economic thinking and cultural enrichment beliefs. Table 3.6 summarizes the pairwise comparisons across groups.

We see in Figure 3.2 and Table 3.6 attitudes towards various ethnic groups were fairly similar between those who score low, and those who score high on economic thinking. The only exception to this were people's attitudes towards Middle Eastern individuals, where those who scored higher on economic thinking held more negative attitudes towards Middle Eastern individuals, relative to those who scored lower on economic thinking. However,

when we look at relative attitudes across target groups, we see a distinct pattern of preference for those who score high on economic thinking.

Among those who score high on economic thinking, we see a pattern of racial and ethnic preferences in line with ethnic / racial stereotypes about economic success. Among those who score high on economic thinking, there were no significant differences in their feelings towards White or European individuals and East Asian individuals. These two groups, however, were rated more positively compared to all other racial and ethnic groups. Those scoring high on economic thinking also rated Middle Eastern individuals least favourably compared to all other racial and ethnic groups. Among those who score low on economic thinking, there were no significant differences people's feelings towards various racial and ethnic groups—except for people having more positive feelings towards East Asian and Latin American individuals over Middle Eastern individuals. These mean differences, however, are much smaller among those who score lower on economic thinking (M_D < 5.5 points) compared to those high on economic thinking (M_D > 9.5 points). Recent research has found that national economic threat has been found to be associated with less favourable attitudes towards immigrants from the Middle East, which may be due to Canadians thinking about Syrian refugees in this context (Esses, Sutter, et al., 2021). Indeed, in the next chapter, we find that, in addition to Ukrainians, people's perceptions of Canada's refugee population is overwhelmingly those who come from the Middle East. Given that refugees are typically seen as "economically costly", this may explain why those who score higher in economic thinking have more negative attitudes towards Middle Eastern individuals, as their predominant perception are refugee individuals.

In contrast to economic thinking, those who score high on cultural enrichment beliefs had more positive attitudes towards East Asian, Black or African, First Nations, Latin American, and South Asian individuals, relative to those who score low on cultural enrichment beliefs. Attitudes towards White or European individuals did not differ among those scoring high or low in cultural enrichment beliefs, however. Among those who score high in cultural enrichment beliefs, we see that differences in preferences are largely driven by differences relative to White or European individuals. That is, with the exception of people's feelings towards Middle Eastern individuals, those scoring high on cultural enrichment beliefs tended to have less positive attitudes towards White or European

individuals relative to all other groups. There were no other differences in people's feelings across all other groups, with the exception of Middle Eastern individuals. That is, people held less positive attitudes towards Middle Eastern individuals compared to all other groups, except for White or European individuals, among those who score high on cultural enrichment beliefs.

Those who score lower on cultural enrichment beliefs, on the other hand, have more positive attitudes towards White or European individuals compared to individuals from any other ethnic group, and more negative attitudes towards Middle Eastern individuals compared to all other groups. Additionally, those who score lower on cultural enrichment beliefs also have more positive attitudes towards East Asian individuals compared to Black or African, First Nations, and South Asian individuals, and more positive attitudes towards Latin American, compared to South Asian individuals.

These patterns of results also further distinguish economic thinking and cultural enrichment beliefs. While high cultural enrichment beliefs were associated with more positive attitudes towards non-White racial and ethnic groups compared to low cultural enrichment beliefs, there were no significant differences in people's attitudes within groups as a function of economic thinking. Additionally, while those low in cultural enrichment beliefs appeared to have a specific hierarchy of racial and ethnic preferences, with White or European individuals on top, followed by East Asian individuals, this pattern was not replicated among those high in economic thinking. Instead, there were no significant difference in people's feelings for White or European individuals relative to East Asian individuals among those high in economic thinking. This further provides evidence that economic thinking and cultural enrichment beliefs do not just measure opposite ends of the same construct. While low cultural enrichment beliefs may measure racial animosity, high economic thinking may tap into people's economic stereotypes about various racial groups. That is, the more people think about immigration in terms of economics, the more negative their attitudes towards other non-White racial or ethnic groups who are not explicitly stereotyped as model minorities, the way East Asians are.

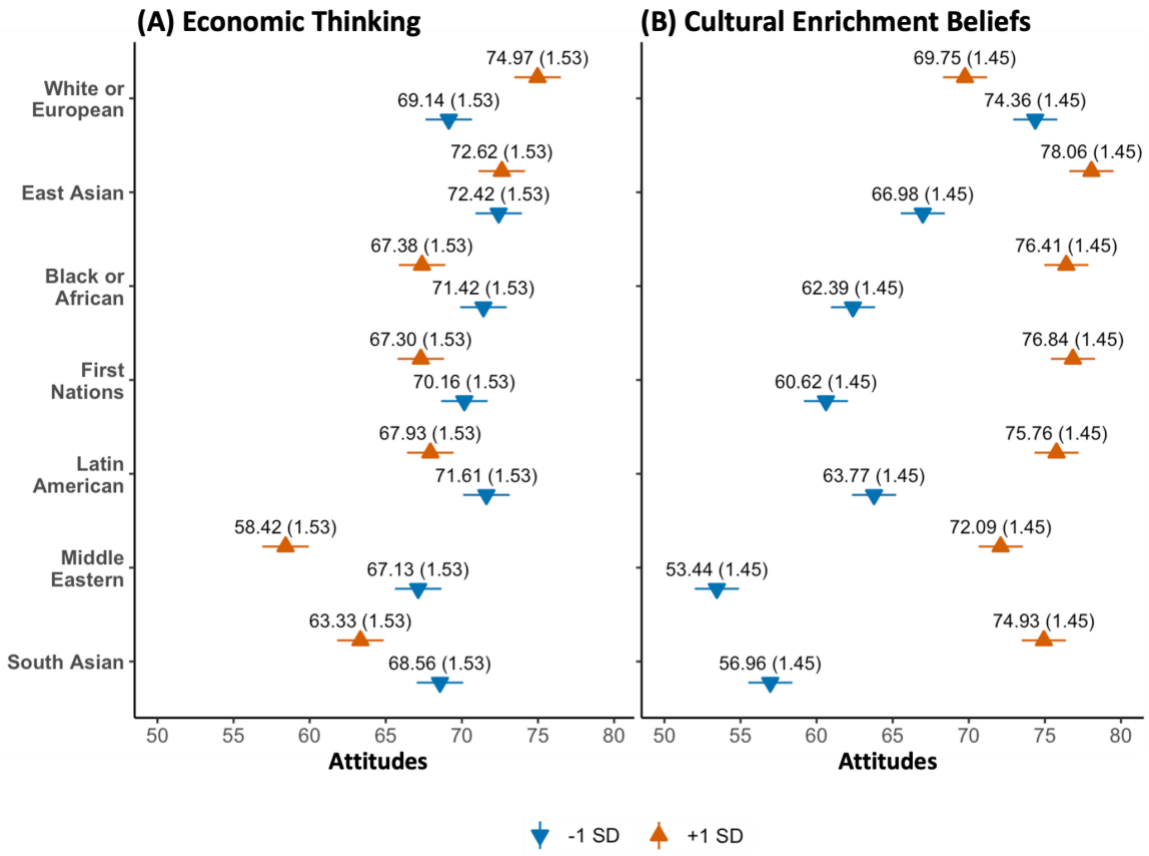

Figure 3.2 Preference Towards Different Ethnoracial Groups Across Attitude Level

Notes. Scores represent estimated marginal means (standard errors) at low (–1 SD) and high (+1 SD) levels of (A) economic thinking or (B) cultural enrichment beliefs.

Table 3.6 Pairwise Comparisons for Preferences Towards Different Ethnoracial Groups

	Economic Thinking				Cultural Enrichment Beliefs			
Contrasts	M_D	*SE*	*t*	p_{adj}	M_D	*SE*	*t*	p_{adj}
Within Targets								
High - Low Moderator								
White or European	5.83	2.28	2.56	.367	-4.62	2.05	-2.25	.591
East Asian	0.21	2.28	0.09	1.000	11.08	2.05	5.41	<.001
Black or African	-4.04	2.28	1.77	.888	14.02	2.05	6.84	<.001
First Nations	-2.86	2.28	1.26	.993	16.22	2.05	7.92	<.001
Latin American	-3.68	2.28	1.62	.941	11.99	2.05	5.85	<.001
Middle Eastern	-8.71	2.28	3.83	.010	18.65	2.05	9.10	<.001
South Asian	-5.22	2.28	2.30	.559	17.98	2.05	8.77	<.001

	Economic Thinking				Cultural Enrichment Beliefs			
Contrasts	M_D	*SE*	*t*	p_{adj}	M_D	*SE*	*t*	p_{adj}
Across Targets								
High level Moderator								
White or European –								
East Asian	2.35	1.33	1.77	.890	-8.31	1.27	6.56	<.001
Black or African	7.59	1.33	5.72	<.001	-6.66	1.27	5.25	<.001
First Nations	7.67	1.33	5.78	<.001	-7.09	1.27	5.59	<.001
Latin American	7.04	1.33	5.31	<.001	-6.01	1.27	4.74	<.001
Middle Eastern	16.55	1.33	12.47	<.001	-2.34	1.27	1.85	.853
South Asian	11.64	1.33	8.77	<.001	-5.18	1.27	4.09	.004
East Asian –								
Black or African	5.24	1.33	3.95	.006	1.65	1.27	1.30	.991
First Nations	5.32	1.33	4.01	.005	1.22	1.27	0.96	1.000
Latin American	4.69	1.33	3.54	.028	2.30	1.27	1.81	.871
Middle Eastern	14.21	1.33	10.70	<.001	5.97	1.27	4.71	<.001
South Asian	9.29	1.33	7.00	<.001	3.13	1.27	2.47	.432
Black or African –								
First Nations	0.08	1.33	0.06	1.000	-0.44	1.27	-0.34	1.000
Latin American	-0.55	1.33	0.41	1.000	1.47	1.27	1.16	.997
Middle Eastern	8.96	1.33	6.75	<.001	4.31	1.27	3.40	.043
South Asian	4.05	1.33	3.05	.122	1.47	1.27	1.16	.997
First Nations –								
Latin American	-0.63	1.33	0.47	1.000	1.08	1.27	0.85	1.000
Middle Eastern	8.88	1.33	6.69	<.001	4.75	1.27	3.74	.013
South Asian	3.97	1.33	2.99	.143	1.91	1.27	1.51	.967
Latin American –								
Middle Eastern	9.51	1.33	7.17	<.001	3.67	1.27	2.89	.180
South Asian	4.59	1.33	3.46	.036	0.83	1.27	0.65	1.000
Middle Eastern –								
South Asian	-4.92	1.33	3.71	.015	-2.84	1.27	2.24	.600

	Economic Thinking				Cultural Enrichment Beliefs			
Contrasts	M_D	*SE*	*t*	p_{adj}	M_D	*SE*	*t*	p_{adj}
Low level Moderator								
White or European –								
East Asian	-3.28	1.33	2.47	.431	7.39	1.27	5.83	<.001
Black or African	-2.28	1.33	1.71	.911	11.98	1.27	9.45	<.001
First Nations	-1.02	1.33	0.77	1.000	13.75	1.27	10.84	<.001
Latin American	-2.47	1.33	1.86	.848	10.59	1.27	8.35	<.001
Middle Eastern	2.01	1.33	1.52	.965	20.92	1.27	16.50	<.001
South Asian	0.58	1.33	0.44	1.000	17.41	1.27	13.73	<.001
East Asian –								
Black or African	1.00	1.33	0.75	1.000	4.59	1.27	3.62	.021
First Nations	2.25	1.33	1.70	.917	6.36	1.27	5.02	<.001
Latin American	0.81	1.33	0.61	1.000	3.20	1.27	2.53	.390
Middle Eastern	5.29	1.33	3.98	.005	13.53	1.27	10.67	<.001
South Asian	3.86	1.33	2.91	.176	10.02	1.27	7.90	<.001
Black or African –								
First Nations	1.26	1.33	0.95	1.000	1.77	1.27	1.40	.982
Latin American	-0.19	1.33	0.15	1.000	-1.39	1.27	1.09	.998
Middle Eastern	4.29	1.33	3.23	.073	8.94	1.27	7.05	<.001
South Asian	2.86	1.33	2.15	.664	5.43	1.27	4.28	.002
First Nations –								
Latin American	-1.45	1.33	1.09	.998	-3.16	1.27	2.49	.416
Middle Eastern	3.03	1.33	2.29	.566	7.17	1.27	5.66	<.001
South Asian	1.60	1.33	1.21	.995	3.66	1.27	2.89	.184
Latin American –								
Middle Eastern	4.48	1.33	3.38	.047	10.33	1.27	8.14	<.001
South Asian	3.05	1.33	2.30	.556	6.82	1.27	5.38	<.001
Middle Eastern –								
South Asian	-1.43	1.33	1.08	.999	-3.51	1.27	2.77	.241

Note. M_D refers to the mean differences across comparisons groups. Comparisons follow recommendations by Aiken & West (1991) to examine simple slopes at –1 SD (low) and +1 SD (high) of the average score for economic thinking and cultural enrichment beliefs. Positive values indicate greater preference for the reference group relative to the comparison; negative values indicate greater preference for the comparison group relative to the reference. P-values are Tukey's HSD corrected for multiple comparisons.

3.4 Discussion

The purpose of this chapter was to provide evidence for the validity of the ETCEI scale. We set out to develop a scale to minimize explicit competitive framing and to better disentangle cultural and economic factors that feed into immigration attitudes by focusing on contribution framing. Consistent with these goals, the economic thinking scale was not associated with general zero-sum thinking, while cultural enrichment was minimally associated with that trait. Both scales, however, where strongly correlated with both the cultural and resource-based aspects of zero-sum beliefs about immigration. As such, it is possible that thinking about immigration more broadly elicits domain-specific zero-sum thinking. Though the correlations between the new and old scales were high, the correlation between cultural enrichment beliefs and economic thinking was lower than the correlations between the resource and culture components of zero-sum beliefs about immigration. This suggests that we succeeded in our goal in developing a measure that better disentangled economic and cultural components.

This study also provides evidence that economic thinking may be a way for some people to express anti-immigrant prejudice more broadly. Both the culture and resource components of the zero-sum belief scale were associated with both cultural enrichment beliefs and economic thinking about immigration. In addition, while we expected economic thinking to be positively associated with social dominance orientation, national attachment, and international attitudes, we also found it was associated with right-wing authoritarianism. As RWA is associated with prejudice stemming from feelings of threat and danger, rather than hierarchy or resource distribution, this suggests that economic thinking about immigration may also tap into anti-immigrant attitudes. Examining personality profiles, those who endorse cultural enrichment beliefs tended to have personality profiles associated with lower prejudice, while those who endorse economic thinking have personality profiles associated with higher prejudice. These patterns of personality and ideology were corroborated when looking at both immigration and ethnic preferences, where economic thinking was associated with a preference to decrease migration more generally, and with more negative attitudes towards racial and ethnic minorities.

Economic thinking, however is not just an inverse of cultural enrichment beliefs. Those who score high in economic thinking tended to have more restrictive migration preferences compared to those scoring low in economic thinking for all admission groups except for economic migrants. In contrast, those who score low in cultural enrichment beliefs tended to have more restrictive migration preferences for *all* admission categories, compared to those scoring high in cultural enrichment beliefs. Similarly, while there were generally no significant differences among those scoring high and low in economic thinking on their attitudes towards various racial and ethnic groups, we see that those who score lower on cultural enrichment beliefs had less positive attitudes towards all non-White racial ethnic groups. Similarly, among those who score high on economic thinking, we see that people's attitudes towards East Asian and White individuals were not significantly different from each other and were more positive relative to other groups. In contrast, those who scored low on cultural enrichment beliefs had more positive attitudes towards White or European individuals, compared to all other groups, followed by more positive attitudes towards East Asian individuals compared to most other non-White European groups.

Though attitudes towards East Asian individuals appear similar among those scoring high on economic thinking and those who score low on cultural enrichment beliefs, factors underpinning these attitudes may be different. Specifically, those who score high on economic thinking may have more positive attitudes towards East Asian individuals compared to non-White or European groups because of stereotypes about their economic success. Past research has found that people's economic concerns about immigration consist not only of labour market competition, but also the perceived "public burden" in terms of taxes and welfare use (Dustmann & Preston, 2004). As such, stereotypes about the economic success of East Asians may buffer them from the anti-immigration attitudes of those who score high on economic thinking, as they may be seen as less of a "public burden". Low cultural enrichment beliefs, on the other hand, may tap more into people's racial animus. Past research has shown that East Asians are often construed as a model minority in order to delegitimize claims of structural or societal discrimination of Black Americans and racial discrimination more broadly (Poon et al., 2016). This often leads to contrastive stereotypes, where East Asian individuals are compared with Black individuals in order to maintain existing racial hierarchies where White individuals are on top (Do Feldman, 2021).

3.4.1 Conclusions

Over the last two chapters, we presented research on the construction and validation of the cultural enrichment beliefs and economic thinking about migration subscales. The factor structure of the scales has been validated across multiple samples and has been shown to have measurement invariance across relevant subpopulations. The subscales shows good convergent and discriminant validity with relevant constructs. Cultural enrichment beliefs and economic thinking about immigration are negatively correlated with each other, and those who endorse these attitudes have opposing ideological and personality profiles. These two scales have also demonstrated criterion validity. Economic thinking about immigration is associated with preferences for skilled migrants and those seen as contributing to the economy and moderates racial and ethnic preferences in line with economic stereotypes. Cultural enrichment beliefs are associated with preferences towards diversity, with a stronger preference towards more permanent migrants (vs temporary foreign workers). In the next two chapters, we examine whether preferences towards these broad categories can be overcome with more individuating information about immigrants' skills, and how these attitudes may feed into the dehumanization of immigrants.

Chapter 4

4 Economic Thinking and Revealed Preferences

4.1 Study 7

In the previous chapter, economic thinking about immigration appeared to moderate preferences in line with both economic and social identity concerns. On one hand, endorsing economic thinking about immigration was associated with a preference to reduce migration across all admission categories, with the exception of economic migrants. Additionally, economic thinking about immigration also moderated racial preferences in line with racial stereotypes about economic success. That is, those who scored high, but not low, on economic thinking about immigration had more positive attitudes towards both White and East Asian individuals compared to all other groups. East Asian individuals are often stereotyped as highly competent and as model minorities—as a group, they are seen as successful because of their hard work (Bu & Borgida, 2020). These racial stereotypes, combined with prior work finding that people tend to prefer immigrants they perceive to be highly skilled (e.g., Hainmueller & Hiscox, 2010), suggest that those who endorse economic thinking about immigration may prefer East Asian immigrants *because* of these stereotypes about their economic ability. Cultural enrichment beliefs, in contrast, predicted preferences towards non-White / European ethnic and racial groups, with some evidence for preferences towards migrants who are perceived to reside in Canada more permanently (e.g., family-class migrants, refugees) versus those who are here temporarily (e.g., temporary foreign workers).

This distinction between whether prejudice is based on economic concerns or ethnic / racial preferences mirrors debates about statistical versus taste-based discrimination. Statistical discrimination refers to (typically an employer's) preferences based on beliefs about an individual's economic ability and labour market potential (Arrow, 1973). While this prejudice ostensibly does not stem from group animus, it is stereotype-based, with beliefs about a person's ability inferred from socio-demographic variables and group membership (Esses, 2021; Tilcsik, 2021). In this sense, statistical discrimination *differs* from realistic threat and competition because rather than disliking economically competitive immigrants (Zárate et al., 2004), people will likely have more positive attitudes towards them. Economic thinking

about immigration appears in part to stem from this form of discrimination as it moderates preferences against non-economic migrants, and towards racialized minorities in line with economic stereotypes. In addition to past work finding that people tend to prefer high, versus low, skilled immigrants (Hainmueller & Hiscox, 2010), other work has found that people's primary economic concerns about immigration are not about job competition. Instead, their main concern revolves around concerns that immigrants may become a "social burden"—that they use more social services than they contribute economically (Dustmann & Preston, 2004). This is consistent with findings from Chapter 3, where economic thinking moderated preferences against non-economic migrants, rather than an increased preference for economic migrants.

Taste-based discrimination on the other hand, is discrimination due to disliking a person *because* of their group membership, rather than inferred economic characteristics. While statistical discrimination is based more on stereotypes, taste-based discrimination is based more on affect (Esses, 2021). Given that immigration status is often conflated with ethnic group membership in Canada and the United States, it is possible that economic thinking may also reflect people's attempts to justify otherwise taste-based prejudices. Tremewan (2009) for example, examined the disparity between the actual economic impact of immigration and people's beliefs about how immigration impacted the economy. Drawing from literature on motivated reasoning, Tremewan (2009) argued that people first have a desired conclusion (i.e., a directional goal) and the desire for their conclusion to be justified by evidence (i.e., an accuracy goal). As such, people *like* or *dislike* culturally dissimilar individuals (i.e., taste-based preferences), and then come up with economic justifications (i.e., faulty statistical beliefs) for their attitudes. Consistent with this hypothesis, Tremewan (2009) found that preference for living in an ethnically homogenous society was inversely associated with beliefs about the positive impact of migration and vice-versa, because people are using economic beliefs to justify their feelings about culturally dissimilar individuals (Tremewan, 2009).

In the context of my previous findings, while the economic thinking about immigration scale was developed to minimize competition and threat framing, it is possible that those who dislike immigration are more likely to endorse economic thinking. The justification-suppression model of prejudice (Crandall & Eshelman, 2003) for example,

suggests that people's expressions of prejudice are socially constrained and often suppressed, unless there are justification factors that allow people to express such prejudices. Framing xenophobic dislike for culturally dissimilar individuals in terms of economic concerns may act as a justifying factor. Indeed, in chapter 3, we found that economic thinking and cultural beliefs about immigration had opposite ideological and personality profiles associated with prejudice. This may suggest that those who endorse economic thinking about immigration dislike immigration and diversity in general, but try to obscure these prejudices with economic beliefs.

4.1.1 Conjoint Surveys

A limitation of the previous study was that ratings were based on a single characteristic (i.e., either type of migrant or ethnic/racial identity) that are often conflated with each other. For example, East Asian individuals are often seen as foreigners by default in both Canada and the United States (Devos & Banaji, 2005; Semenya, 2001), and it is likely that people associate different categories of migrants with different ethnic groups based on histories of migration. For example, prior to Russia's invasion of Ukraine, people likely associated refugees with Syrians because of the prominence of the Syrian refugee crisis. Thus, it is unclear whether liking or disliking of different migrant groups *or* different racial / ethnic groups stems from (often faulty) statistical beliefs about their economic ability or because of taste-based disliking due to group membership. This is further complicated by issues of social desirability and motivated reasoning. Because expressions of overt prejudice based on group memberships are socially non-normative, people may be more likely to express their dislike as economic concern. Alternatively, rather than being informed by true statistical information about economic impact, people may simply dislike immigration and subsequently generate faulty beliefs about economic impact to justify their attitudes (Tremewan, 2009).

The present study attempts to address this issue by using a conjoint analysis (Bansak et al., 2021). Conjoint surveys typically present participants with pairs of stimuli across multiple trials, with stimuli varying across multiple dimensions. For example, a typical conjoint survey in the political sciences may be interested at looking at how various attributes like gender, party affiliation, and policy position affect preferences towards

political candidates. In these experiments, participants would be shown a series of pairs of candidates varying along these attributes and asked to rate candidates and select which candidate they prefer overall. A strength of this design, compared to traditional between-subjects experiments, is that researchers can estimate the average effects of multiple attributes *conjointly*, rather than limiting themselves to a small number of treatment conditions (Bansak et al., 2021). Because of this, conjoint surveys are less prone to social desirability bias as participants may believe that their responses are less likely to be associated with a single attribute (Horiuchi et al., 2022). Additionally, because participants' preferences are assessed across multiple trials, idiosyncrasies in their responses due to post-hoc reasoning should average out, and the average effect of each attribute on their preferences is revealed.

Conjoint experiments have also been found to be valid in predicting real-world preferences. For example, Hainmueller et al. (2015) validated various conjoint survey experimental designs on people's preferences towards immigrants. Specifically, they benchmarked their results with natural experiments in Switzerland, where various municipalities use referendums to vote on the naturalization of immigrants. Hainmueller et al. (2015) found that paired conjoint experiments, where participants evaluate pairs of immigrants varying along various attributes (either presented as a vignette or in a table) were best at approximating real-world behavioral benchmarks, especially when sample characteristics are representative of the population.

4.1.2 Present Study

In the present study, we attempt to disassociate the effects of taste-based affect and (statistical) beliefs about various groups on preferences towards immigrants. By using conjoint survey designs, we are able to present participants with immigrant profiles that vary along multiple attributes, allowing me to examine the extent to which preferences are influenced by taste-based affect or statistical beliefs. If economic attitudes predict preferences for immigrants based on their potential to contribute to the economy, then these attitudes should not moderate preferences based on immigrant country of origin—which is a proxy indicator for cultural similarity, race, and ethnicity—in the presence of individuating factors. Specifically, we combine information about country of origin with the immigrant's admission category—whether they are economic migrants, temporary foreign workers, or

family-class migrants applying for permanent residency. In addition, we provide additional information about their level of education and language proficiency in line with Canada's comprehensive ranking system criteria for express entry applicants who are assessed within the economic immigration category. Though we do not explicitly manipulate Canadian work experience, we specify whether applicants are temporary foreign workers, indirectly implying that they previously worked in Canada. In addition, we manipulate whether the participant's educational credentials were received in Canada or whether they were received in their home country, as foreign credentials tend to be perceived more negatively. Lastly, people have different perceptions of the importance of various types of jobs; as such, we vary the target's occupational field.

If economic thinking is associated with stereotypes about the economic potential of various groups by country of origin, then presenting individuating information about that signal economic potential should reduce their bias. That is, we expect economic thinking to moderate people's preferences as follows. First, those higher in economic thinking would show a preference towards immigrants with higher education and against those with lower education, while there should be no difference in educational preferences for those lower in economic thinking. Second, those higher in economic thinking would show a preference for individuals who have stronger official language proficiency, while those lower in economic thinking should not show a preference. Third, those higher in economic thinking should show a preference for individuals who received their education in Canada and against those who received their education abroad, while there should be no preference for or against where the target received their education for those low in economic thinking. Lastly, those higher in economic thinking should show preferences for immigrants who have jobs in fields that are seen as more economically useful (e.g., healthcare, technology) and against those who have jobs in "low skilled" domains (e.g., food service, hospitality). If economic thinking, however, is associated with taste-based preferences, then we expect that economic thinking would continue to moderate preferences for immigrants by country of origin. Specifically, those who endorse economic thinking about immigration would have more negative attitudes towards immigrants from countries that are seen as more culturally or ethnically dissimilar to Canada. Lastly, we also examine how cultural enrichment beliefs moderate these preferences. Specifically, because cultural enrichment beliefs are associated

with pro-diversity attitudes, we predict that it should moderate preferences for immigrants from culturally different countries.

4.2 Methods

4.2.1 Participants

Individuals currently living in Canada were invited to participate in a study on interpersonal perception using Prolific Academic's online survey panel. Though we aimed to collect data from 500 participants, three participants completed the study without providing any responses resulting in a total of N = 497 participants in the study. Data were collected between June 22, 2022 - June 23, 2022, and participants were paid £1.88 for 15 - 20 minutes of their time. To mitigate low quality responses, the study invitation was available only to those who completed a minimum of 20 submissions with the survey panel with a minimum approval rating of 98%. After the collection, the data were further processed to remove participants who failed a simple attention check during the survey portion, and those flagged for suspicious responding based on Qualtrics's automatic and fraudulent responding detection software. The final sample consisted of N = 481 participants (46.36% male, 49.9% female, 4.74% another gender identity) between the ages of 18 - 76 years old (M = 34.06, SD = 11.76). The majority of the participants reported they were born in Canada (75.88%) and identified as White (64.2%).

4.2.2 Procedure

Participants were invited to participate in our study via email through Prolific Academic. After accepting the invitation and consenting to participate, participants completed a brief demographic questionnaire asking them a few questions about themselves. Afterwards, participants completed a short attitude questionnaire with 6 items assessing their economic reasoning about immigration (α = .84) and 11 questions assessing their cultural enrichment beliefs (α = .97). Participants were asked the extent to which they agreed with each statement on a 7-point scale ranging from 1(strongly disagree) to 7(strongly agree).

Participants were given instructions for the main task following the attitude survey. They were told that they would be assessing profiles of immigrants applying for permanent residency. They were given definitions of three types of immigrants—economic migrants,

temporary foreign workers, and family class migrants—whose profiles they would be reviewing. These definitions were based on the definitions used by the Government of Canada (see "Glossary"). Participants were told that they would review ten pairs of candidates who varied along various characteristics and would be asked who they think should be admitted to Canada. An example trial was shown before the main task.

Each of the ten trials showed the profiles of two candidates side-to-side. The profiles read "*[Initials] is [migrant type] from [country of origin]. [He / She] has a [educational attainment] from a school in [country of education]. [He / She] [language proficiency] in English and plans to work in [industry]*". The characteristics (see Table 4.1.for full list) were completely randomized between profiles and trials, with the possibility of resampling. The initials were semi-randomized so that no two profiles would have the same initials in the same trial. Participants were asked to choose which candidate they would prefer to admit to Canada using a forced-choice paradigm. Participants were debriefed about the purpose of the study and redirected back to Prolific Academic where they were compensated for their time.

Table 4.1 Potential Attributes for Candidate Ratings

Attribute	Potential Options
Country of Origin	India, South Korea, the Philippines, the United States, Nigeria, Pakistan, the United Kingdom, China, Cameroon, Vietnam
Migrant Type	an economic migrant, a family-class migrant, a temporary foreign worker
Educational Attainment	high school degree (or equivalent), 2-year Associate's degree (or equivalent), 4-year Bachelor's degree (or equivalent), Master's degree
Country of Education	Canada, their home country
English Proficiency	is fluent, has working proficiency, has intermediate proficiency
Industry	food service, finance, healthcare, hospitality, construction, technology, education

4.3 Results

The data were analyzed using logistic regression with Eicker-Huber-White robust standard errors to account for observations clustered within participants[7]. The average component marginal effects (ACME) were estimated at low (-1 SD) and high (+1 SD) levels of economic thinking (Figure 4.1) and cultural enrichment beliefs (Figure 4.2) using the emmeans package (Russel, 2022), with Bonferroni-adjusted p-values and confidence intervals to account for multiple comparisons. The values in Figure 4.1 and Figure 4.2 represent the probability that a given profile would be selected given a specific feature, while holding all other features constant. For example, imagine two candidates, A and B. If candidate A had a specific feature, and that feature's ACME contained 0.50 in its 95% confidence interval, it means that there was no preference for that feature. However, if candidate A had a feature with an ACME where the confidence intervals were greater than 0.50, then that indicates a preference for that trait, and the probability of selecting candidate A would be higher than selecting candidate B, on average, if candidate B did not have this feature. On the other hand, if candidate A had a feature with an ACME where the confidence intervals were less than 0.50, that indicates a preference against that feature, and the probability of selecting the other candidate would be higher.

[7] Details on setting up the experiment and preparing the data for analysis can be found in the tutorial by Matthew H. Graham (Programming Choice Experiments in Qualtrics, Graham, 2020). We analyzed the data using robust standard errors as it was in line with the analytic techniques used in fields like sociology and political science where this type of survey is most common. However, you can also analyze this using a linear mixed effects model, with ratings clustered within participants. As all features are presented and randomized across trials, there is generally no need to nest ratings within trials within participants as the conditions across all trials are uniform.

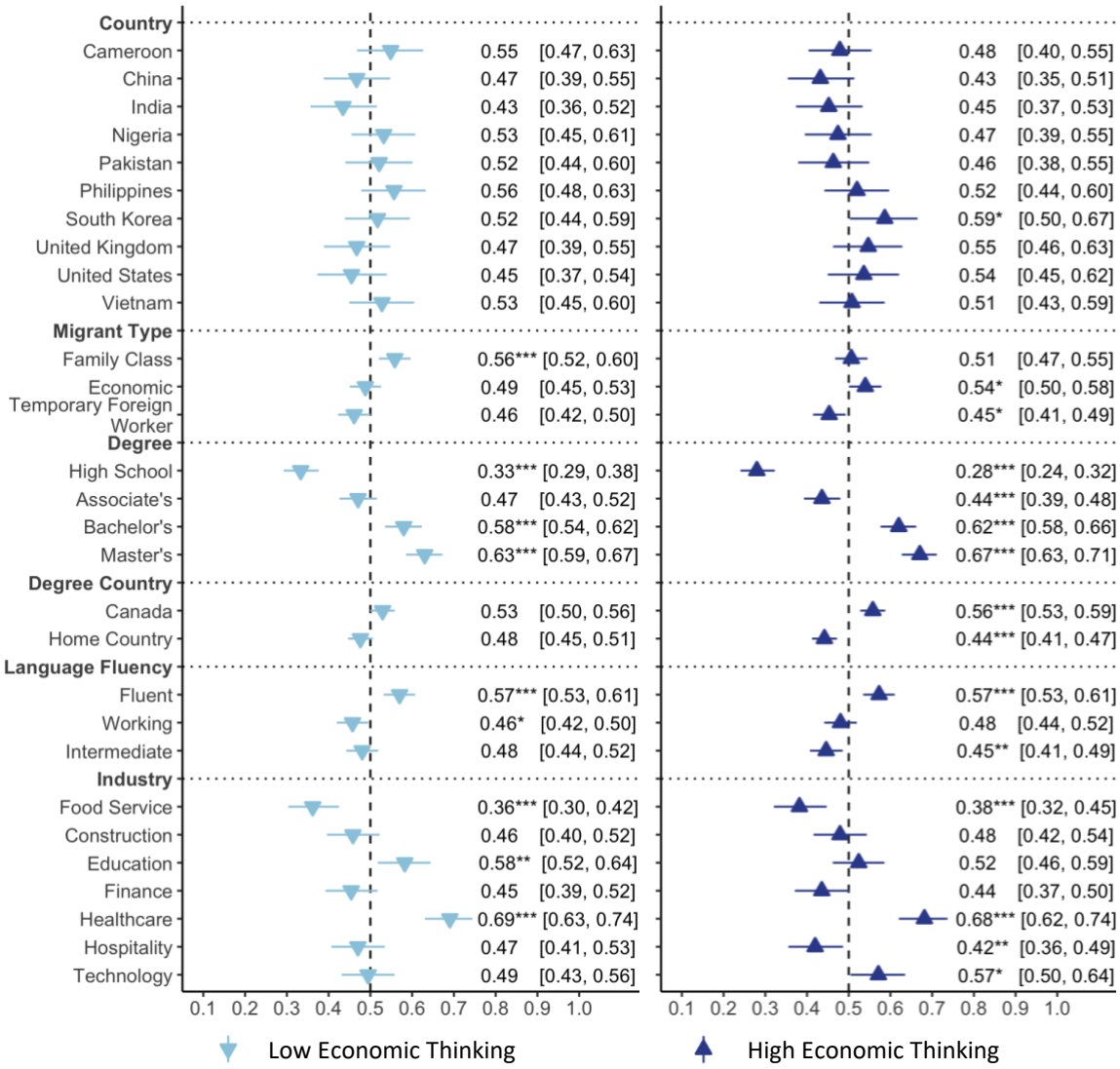

Figure 4.1 Economic Thinking and Revealed Preferences

Note: Values where confidence intervals overlap with 0.5 indicate no preference for a feature, while values where confidence intervals are > 0.5 indicate preferences for a feature, and < 0.5 indicates a preference against a feature. *** indicates a $p < .001$, ** indicates a $p < .01$, and * indicates a $p < .05$.

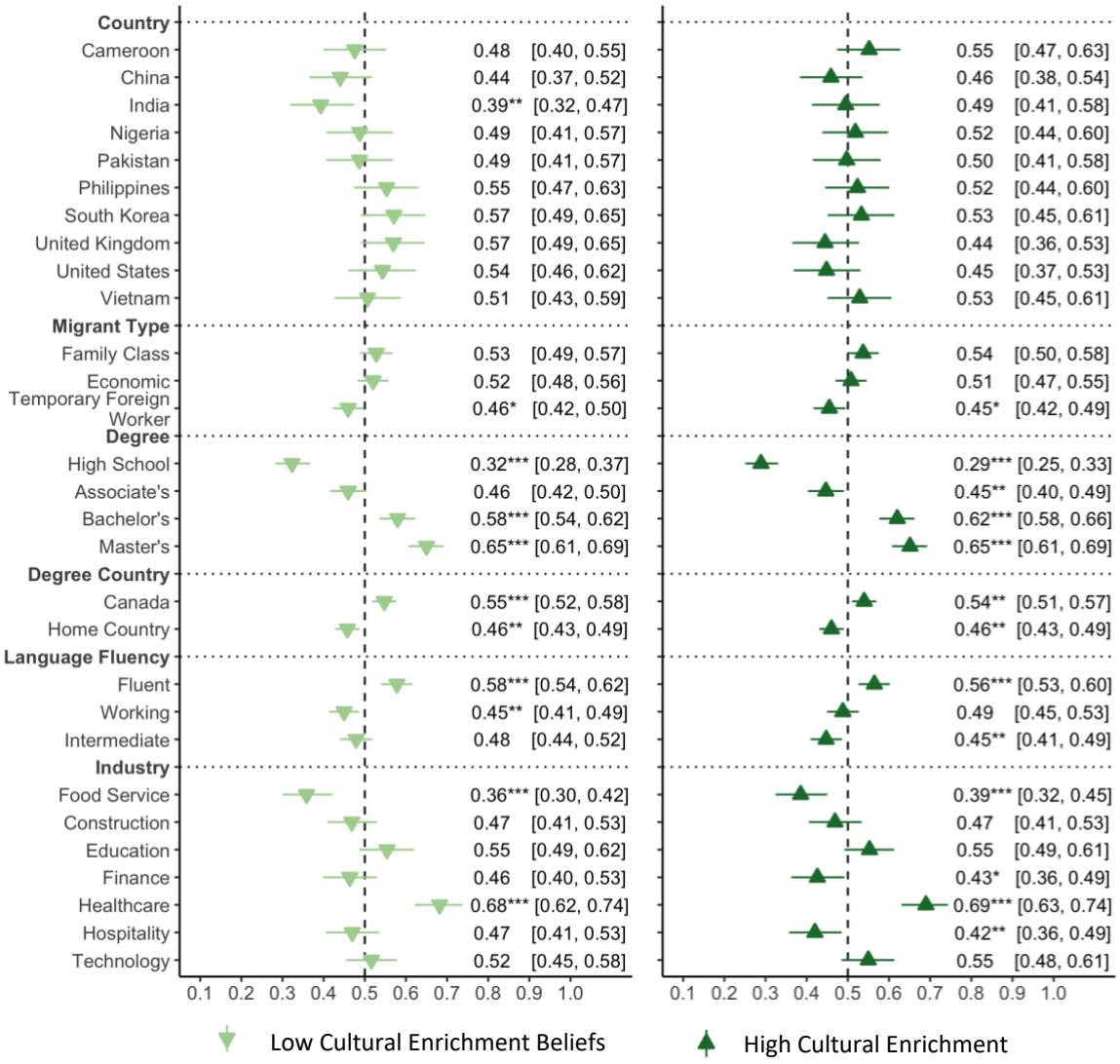

Figure 4.2 Cultural Enrichment Beliefs and Revealed Preferences

Note: Values where confidence intervals overlap with 0.5 indicate no preference for a feature, while values where confidence intervals are > 0.5 indicate preferences for a feature, and < 0.5 indicates a preference against a feature. *** indicates a $p < .001$, ** indicates a $p < .01$, and * indicates a $p < .05$.

4.3.1 Country of Origin

In contrast to findings in Chapter 3, there were very few differences in preferences due to country of origin regardless of one's level of economic thinking and cultural enrichment beliefs. This suggests that, for the most part, information signalling information about immigrants' economic ability can account for the biases due to people's economic and cultural attitudes. There are two exceptions, however—those who score high on economic thinking showed a preference for immigrants coming from South Korea, while those low in economic thinking showed a preference against those coming from India.

4.3.2 Migrant Type

There were differences in people's preferences towards different types of immigrants as a function of economic thinking, but not cultural enrichment beliefs. As we can see in Figure 4.1, those who scored lower on economic thinking had a preference for family class migrants, and no preference for or against economic migrants or temporary foreign workers. Those who score higher on economic thinking had a slight preference for economic migrants, and against temporary foreign workers, but no preference for or against family class migrants. In contrast, as we can see in Figure 4.2, participants had a slight preference against temporary foreign workers, and no preference for or against family class and economic migrants, regardless of level of cultural enrichment beliefs.

4.3.3 Degree

In general, we see that participants, regardless of their levels of economic thinking and cultural enrichment beliefs, have a preference for migrants with higher levels of education, and a preference against those with lower levels of education. Interestingly, while those who score low on economic thinking and cultural enrichment beliefs show no preference for or against migrants with 2-year associate's degrees, those who score high on either trait show a preference against these immigrants.

4.3.4 Degree Country

There were differences in preference for where immigrants received their education as a function of economic thinking, but not cultural enrichment beliefs. As we can see in Figure 4.1, those who score lower on economic thinking had no preference for immigrants

who received their education in Canada versus in their home country. Those who score higher on economic thinking, however, had a preference for immigrants who received their education in Canada, and a preference against those who received their education in their home country. While there were no differences in patterns of preference, those who score low and high on cultural enrichment beliefs showed a preference for immigrants who were educated in Canada, and against those who were educated in their home country.

4.3.5 Language Fluency

Patterns of preferences for language fluency were similar for economic thinking and cultural enrichment beliefs. Regardless of attitude, participants showed a preference for those who were fluent in English. Those who scored low on economic thinking and those who scored low on cultural enrichment beliefs additionally showed a slight preference against those with working proficiency in English, and no preference either way for those with intermediate proficiency. In contrast, those who scored higher on economic thinking and those who scored higher on cultural enrichment beliefs showed a preference against immigrants with intermediate fluency, and no preference for or against those with working proficiency.

4.3.6 Industry

People's preferences for the industry where immigrants plan to work differed as a function of economic thinking and cultural enrichment beliefs. As we can see in Figure 4.1, participants who scored low and high on economic thinking both had preferences against immigrants planning to work in food service, a preference for those working in healthcare, and no preference for those who planned to work in construction. Those who scored lower in economic thinking, however, additionally had preferences for immigrants working in education. In contrast, those who scored higher on economic thinking additionally had preferences against those working in hospitality, but preferences for those working in technology.

Similar to economic thinking, those who scored low and high on cultural enrichment beliefs had preferences against immigrants working in food service and preferences for those who worked in healthcare. Among participants who scored low on cultural enrichment

beliefs, however, there were no preferences for or against any other industry presented in the study. Those who score higher on cultural enrichment beliefs, however, showed a slight preference against immigrants working in finance and hospitality.

4.4 Discussion

The current study sought to disentangle the association between economic thinking and prejudices that stem from taste-based influences versus those that stem from statistical beliefs about economic performance. That is, does economic thinking about immigration measure preferences for economic characteristics, or do these responses represent post-hoc justifications of taste-based prejudice? Because economic vary across racial and ethnic groups, the present study attempted to address these issues using a conjoint survey design. Participants rated the profiles of immigrants, using country of origin as a proxy for race. To control assumptions about economic ability based on country of origin, each profile varied across several characteristics that are selected for in Canada's express-entry system (Government of Canada, 2021), as well as other features, like where immigrants received their (educational) credentials, to control for other stereotypes.

People's preferences were largely consistent regardless of their levels of economic thinking or cultural enrichment beliefs. For example, people tended to have preferences for more educated immigrants (i.e., 2-year postsecondary and above) and preferences against less educated immigrants (i.e., high school), regardless of their economic thinking and cultural enrichment beliefs. Additionally, people appeared to show preferences for immigrants who were fluent in English, though preferences for immigrants with intermediate and working proficiency varied across attitudes. Lastly, regardless of people's attitudes, there were consistent preferences against immigrants working in food service and preferences towards those who work in healthcare. This suggests that regardless of one's attitudes, people view immigrants working in healthcare as more important for Canada, while those who work in food service are seen as less important.

With regards to our hypothesis, there was evidence that economic thinking moderated preferences for a few factors. For example, those who scored higher on economic thinking had a preference for economic migrants and against temporary foreign workers, while those who scored lower on economic thinking had a preference for for family

class migrants. This suggests that, holding the effects of country of origin and other characteristics constant, those who score high in economic thinking may believe that (i) economic migrants are more beneficial to the economy, and that (ii) temporary foreign workers may be more detrimental to the economy overall. Additionally, those who scored higher on economic thinking had a preference for immigrants with Canadian education, and against those who received their education from their home country, consistent with past research finding that people had biases against immigrants with foreign credentials (Louis et al., 2010). We believe these preferences stem from statistical, and not taste-based discrimination for the following reasons. First, taste-based discrimination refers to disliking of individuals due to group membership. Country of origin would not change regardless of whether immigrants received their education in Canada or back from their home country, and thus we would expect there to be no preferences as a function of country of origin. Second, differences in immigrant earnings appear to be accounted for, in part, by employers' familiarity with the quality of foreign credentials (Monteiro, 2020). In the absence of this information, preferences for immigrants educated in Canada may not come from taste-based preferences stemming from group membership, but from statistical discrimination based on one's knowledge of Canada's educational system and lack of knowledge about the quality of education in foreign countries. In contrast, those who score lower on economic thinking did not have any preference regardless of where immigrants were educated. Lastly, while those who score lower on economic thinking preferred immigrants working in education, those who score higher had a preference for immigrants working in the technology industry, consistent with the lay perception that STEM (science, technology, engineering, and math) jobs are important for economic growth.

For the most part, there were no differences in patterns of preferences as a function of cultural enrichment beliefs. Some of the unmoderated preferences found in Figure 4.2, however, are similar to the patterns of preferences for those who score high on economic thinking. For example, regardless of one's cultural enrichment beliefs, people tended to have a preference against temporary foreign workers, those who received their education in their home country, and a preference towards those who received their education in Canada—a pattern similar to participants who scored high on economic thinking. This suggests that economic thinking about immigration occurs in both people who have strong preferences

for and against diversity, and informs their attitudes towards immigrants. Furthermore, this suggests that statistical inferences people make about the (potential) economic contribution of "skilled migrants" may overcome people's taste-based preferences, corroborating findings that suggest Canadians' uniquely positive attitudes towards immigrants come from perceptions of economic contribution (Aytac et al., 2022).

Chapter 5

5 Economic Thinking and Dehumanization

5.1 Study 8

Immigrants are frequently described through animalistic metaphors, comparing them to vermin, or by likening them to 'hordes' and 'floods' (Esses, Medianu, & Sutter, 2021; O'Brien, 2003). These metaphors are meant to elicit specific emotions with the goal of shifting attitudes towards social policies. For example, likening immigrants to vermin elicits feelings of disgust and anger, leading to more negative attitudes towards immigrants and support for stricter immigration policies (Marshall & Shapiro, 2018; Utych, 2017). Describing immigrants as entering the country in *hordes* or *floods* inflates the perception of the number of immigrants entering a country, which has been associated with greater anti-immigrant attitudes (Schneider, 2008). Given the history of dehumanizing metaphors and immigration, it is not surprising that the majority of work in this area focuses on animalistic forms of dehumanization. However, the targets of these animalistic metaphors are often immigrants in precarious positions, such as asylum seekers or refugees (see Esses, Medianu, & Sutter, 2021 for review), and is often in response to perceived threats. These immigrants are often stereotyped as low warmth and competence; however, circumstances of migration, country of origin, and perceived economic ability all contribute to differences in immigrant stereotypes (Bingelli et al., 2014a; Bingelli et al., 2014b; Froelich & Schulte, 2019). Given that pro-immigration narratives often focus on the economic contribution of immigrants, it is important to examine how these perceptions influence the dehumanization of other groups.

5.1.1 Animalistic and Mechanistic Dehumanization

There are two main forms of dehumanization (Haslam & Loughnan, 2014). The first form is known as *animalistic dehumanization* where people are perceived to be more similar to animals. The second form is *mechanistic dehumanization* where people are perceived to be more similar to machines. These two forms of dehumanization can both be blatant and subtle. Blatant dehumanization refers to forms of dehumanization that, at face value, denies people's full humanity (Kteily et al., 2015; Kteily & Landry, 2022). For example, immigrants being likened to vermin or workers compared to "cogs in a machine" are forms of blatant

dehumanization. On the other hand, dehumanization can also be subtle in nature by denying people traits we typically associate with humanity. For example, denying that someone experiences traits or emotions that separate them from animals (uniquely human traits) or traits that, while animals are also viewed as having, are essential to human nature (human nature traits) are forms of subtle dehumanization (Haslam & Loughnan, 2014). These are *subtle* because they do not explicitly liken people to animals or machines, but instead deny them traits we attribute to being fully human.

In terms of measurement, both blatant and subtle dehumanization can be measured *explicitly* with self-report surveys, or implicitly with various social cognitive tasks. For example, direct or explicit measures of blatant dehumanization may use rating scales asking participants how animal-like (e.g., Kteily et al., 2015) or machine-like (e.g., Bai & Zhao, 2021) they perceive others. Similarly, people may look at *infrahumanization*—the extent to which people deny secondary traits and emotions thought to be uniquely human or essential to human nature—directly asking participants the extent to which these traits and emotions are characteristic of various groups or people (Leyens et al., 2001). Indirect or implicit measures may use reaction time measures in tasks like the implicit association test (IAT) or sequential priming (e.g., Goff et al., 2008; Medianu, 2014). The idea behind these implicit measures is that people store information about different concepts in associative networks, and that activation of one node in that network makes it easier to access information in other nodes (Greenwald & Banaji, 1995). As such, if people dehumanize certain groups, such as refugees, then part of their associative networks would include "animal", making it easier to process information about animals after thinking about refugees. For example, Medianu (2014) used the sequential priming paradigm to examine the implicit dehumanization of refugees. In his experiment, participants were presented with images of humans or animals and were asked to classify each image accordingly. Preceding these images were the words "refugee", "Canadian", or no prime. Based on models of associative networks, if refugees are animalistically dehumanized, then thinking about refugees should lead to correctly identifying images of animals faster, and humans slower, compared to thinking about Canadians or not being primed with any category at all. Consistent with these hypotheses, Medianu (2014) found that people were faster to identify animals as animals, and slower to

identify humans as humans, when primed with the concept of "refugees", suggesting the implicit dehumanization of refugees as a group.

Research on the dual model of dehumanization has been criticized for focusing primarily on desirable traits (Enock, Flavell, et al., 2021). Looking at both desirable and undesirable uniquely human and human nature traits, Enock et al. (2021) found that patterns of attribution and denial were more similar to ingroup-outgroup dynamics, rather than trait-based dehumanization. That is, people were more likely to attribute desirable traits and deny undesirable traits to ingroups, while denying desirable and attributing undesirable traits to outgroups (Enock, Flavell, et al., 2021; Enock et al., 2021). Though the authors argue that this is evidence against the existence of trait-based dehumanization, recent models of dehumanization may be able to integrate these disparate findings. Kteily and Landry (2021) note how, for example, European football fans dehumanize African players with monkey chants. Though these chants imply that the European fans are likening African players to apes, the act also implies that they understand African players have both the cognitive ability and emotional capacity to understand that these chants are insults—something animals would not be able to do. Thus, Kteily and Landry (2021) argue that people conceptualize humanity along a vertical spectrum, with the "ideal human" on top. Thus, while Enock and colleagues (2021) suggest that ingroup-outgroup patterns of ascribing positive traits to ingroups and negative traits to outgroups are incompatible with theories of subtle dehumanization, Kteily and Landry's (2021) theory is able to encompass both, by suggesting that people can simultaneously ascribe and deny different aspects of humanity.

5.1.2 Stereotype Content and Dehumanization

The stereotype content model (SCM) suggests that perceptions of social groups can be described along dimensions of warmth and competence (Fiske et al., 2002). Different configurations of warmth and competence lead to specific emotions—for example, groups seen as high in warmth and competence tend to be admired, while those who are seen as competent but not warm are envied and are usually seen as competing with the ingroup (Cuddy et al., 2007). In contrast, those who are seen as warm but not competent are typically the recipients of paternalistic prejudices and are pitied, while those who are seen as lacking both warmth and competence elicit contempt and disgust (Cuddy et al., 2007). It is this last

group, the low warmth and low competence quadrant that is typically seen as the target of dehumanization. Studies using neuroimaging techniques have found that brain regions associated with social cognition typically do not activate when evaluating individuals who belong to these "low-low" groups (Harris & Fiske, 2006), suggesting that the brain does not encode these individuals as fully human.

While the stereotype content account of dehumanization focuses on the relationship between stereotypes and dehumanization, other models focusing on mental states or trait-based attribution also find similar dimensions. For example, the mind perception account (Gray et al., 2007) suggests that people perceive others in terms of *agency* and *experience*. While agency refers to mental abilities like self-control, communication, and thinking in general, experience refers to the mental capacity for emotions and personality (Haslam & Loughnan, 2014, Li et al., 2014). The dual model of dehumanization focuses on the attribution and denial of uniquely human traits that separate people from animals (e.g., conscientiousness, broadmindedness, organization) and traits seen as essential to human experience that separate people from automatons (e.g., curiosity, joy, etc.) (Haslam & Bain, 2007, Haslam & Loughnan, 2014). Examining these dimensions, both agency and human uniqueness are similar to the *competence* dimension of the stereotype content model, focusing on broad traits of agency and cognitive ability—and the denial of these traits being associated with animalistic forms of dehumanization (Li et al., 2014). Similarly, experience and human nature appear to be associated with the *warmth* dimension of the stereotype content model, focusing on traits related to experience and emotion—the denial of which leads to mechanistic forms of dehumanization (Li et al., 2014).

While the SCM account of dehumanization suggests dehumanization occurs primarily for those seen as low warmth and low competence, there is evidence that mixed positive-negative stereotype content lead to different forms of dehumanization. For example, Black individuals tend to occupy the low warmth and low competence quadrant in the stereotype content model, while East Asians tend to occupy the low warmth and high competence quadrant (Lee & Fiske, 2006). Accordingly, while Black individuals tend to be dehumanized animalistically, East Asian individuals tend to be dehumanized mechanistically (Bai & Zhao, 2021). Further research on the use of mechanistically dehumanizing metaphors has also found that they tend to increase the perceived competence of the targets (Fowler &

Utych, 2021). These findings suggest that animalistic dehumanization tends to be applied to disliked outgroups who are seen as lacking agency and cognitive ability, while mechanistic dehumanization is applied to disliked groups who are seen as competent through the denial of secondary characteristics related to human experience.

Research at the intersection of immigration and dehumanization has typically focused on the most precarious groups, who typically occupy the low warmth and low competence quadrant of the stereotype content model. For example, Froelich and Shulte (2019) examined stereotypes of immigrants in Germany, and found that immigrants who come from regions of conflict tend to be perceived to be low in both warmth and competence. In contrast, those who come from economically competitive regions tend to be perceived as low warmth and high competence. Further research examining the precise stereotype content of immigrants has also found that immigrants tend to be organized along dimensions of vulnerability (vs hardworking) and being a national drain (vs asset) (Lee & Fiske, 2006; Savaş et al., 2021).

5.1.3 Economic Thinking, Cultural Enrichment Beliefs, and Dehumanization

Compared to animalistic dehumanization, mechanistic dehumanization appears to occur for groups that are disliked but are seen as competent. This suggests that economic thinking about immigration, but not cultural enrichment beliefs, should be associated with mechanistic dehumanization, especially for immigrants selected for their (potential) economic contribution. Those who endorse economic thinking appear to dislike immigration and diversity broadly, though show a preference for immigrants perceived to be economically successful (Chapter 3 and 4). This is in line with patterns of mechanistic dehumanization, where disliked groups who are seen as competent are more likely to be mechanistically dehumanized. In contrast, cultural enrichment beliefs do not appear to reliably track preferences for immigrants' economic characteristics. As such, it would not be expected that this attitude would be associated with mechanistic dehumanization.

5.1.4 Present Study

The goal of the present study is two-fold. The first goal is to examine the relative (subtle and blatant) dehumanization across different groups of immigrants and Canadians in general. Most of the literature on immigration and dehumanization focuses on asylum seekers and refugees. However, people's perceptions of other immigrant groups, such as economic migrants, family-class migrants, temporary foreign workers, and international students differ from these groups. Both economic migrants and temporary foreign workers are admitted to Canada because of their potential contribution to the economy. Though people who endorse economic thinking about immigration dislike immigration overall, they tend to have more positive attitudes toward economic migrants compared to refugees and family-class migrants. Similar to economically competitive migrants, international students are also likely to be seen as highly competent because of their pursuit of higher education—and indeed, those who endorse economic thinking about immigration tend to have more positive attitudes towards international students relative to family-class migrants. Though recent research suggests that the attribution and denial of uniquely human and human nature traits follow ingroup-outgroup dynamics, there may be differences in relative attribution of uniquely human, compared to human nature traits for each group. That is, while people may be more likely to attribute desirable traits to Canadians in general and attribute undesirable traits to immigrants, regardless of trait type, certain immigrant groups may experience greater attribution (or denial) of certain traits. For example, people may be more likely to deny traits essential to human nature versus traits unique to humans for economic migrants, temporary workers, and international students, while other groups like refugees are denied uniquely human traits more than they are denied human nature traits.

Similar to our hypothesis of subtle dehumanization, we are also interested in the relative dehumanization across groups, and relative levels of animalistic versus mechanistic dehumanization. We hypothesize that economic migrants, temporary foreign workers, and international students are more mechanistically (vs animalistically) dehumanized, compared to Canadians in general, family class migrants, and refugees. Additionally, refugees are hypothesized to be more animalistically (vs mechanistically) dehumanized relative to Canadians in general, economic migrants, temporary foreign workers, and international students. Finally, we hypothesize that economic migrants, temporary foreign workers, and

international students are more mechanistically (vs animalistically) dehumanized overall, whereas refugees are more animalistically (vs mechanistically) dehumanized overall. We expect there to be no differences in relative animalistic vs mechanistic dehumanization of Canadians in general.

The second goal of this study is to examine how economic thinking and cultural enrichment beliefs differentially moderate the animalistic and mechanistic dehumanization of different types of immigrants (e.g., economic, family class, refugee, etc.).. Because mechanistic dehumanization appears to be applied to disliked groups that are also perceived to be high in status, agency, or competence (Bai & Zhao, 2021; Loughlan & Haslam, 2007), those who endorse economic thinking about immigration may be more prone to mechanistically dehumanize immigrants, and in particular, mechanistically dehumanize immigrants selected for economic ability. That is, we hypothesize that economic thinking is associated with greater mechanistic (but not animalistic) dehumanization overall. Additionally, we hypothesize different patterns of relative dehumanization such that those who score high on economic dehumanization mechanistically dehumanize economic migrants, temporary foreign workers, and international students more relative to family class migrants, refugees, and Canadians in general. There should be no differences in mechanistic dehumanization across groups for those low in economic thinking. Finally, economic thinking should not be associated with any differences in animalistic dehumanization. In contrast, we hypothesize that cultural enrichment beliefs should not be associated with mechanistic dehumanization. However, since those low in cultural enrichment beliefs may be similar to prejudiced individuals who dislike diversity, we hypothesize that those who score lower on cultural enrichment beliefs should be more likely to animalistically dehumanize migrant groups relative to Canadians in general.

5.2 Methods

5.2.1 Participants

Participants (N = 500) currently residing in Canada were recruited from Prolific Academic between July 6th, 2022 and July 16, 2022, and compensated £1.88 for 15 - 20 minutes of their time. After data collection, participants were further excluded for failing a simple attention check question and for suspicious responding based on Qualtrics's built-in

automatic and fraudulent responding software. Qualtrics identifies participants as a potential fraudulent response using a reCAPCHA vs 3 (Google Developer, n.d.; Qualtrics Support, n.d.), which analyzes how users interact with a particular webpage, flagging users whose behaviors are similar to automated bot responses. The final sample consisted of $N = 482$ participants (46.68% male, 51.04% female, 2.28% another gender identity), 18 - 77 years old ($M = 32.48$, $SD = 11.17$). Approximately 72.82% of the participants reported they were born in Canada, and approximately 65.15% identified as White.

5.2.2 Procedure

Participants received an online invitation from Prolific to participate in the study. After accepting the invitation and consenting to participate, participants were asked demographic questions about themselves. Afterwards, they completed the scale developed in the previous chapters assessing their economic thinking ($\alpha = .85$) and cultural enrichment beliefs ($\alpha = .96$) about immigration on a 7-point scale from 1 (strongly disagree) to 7 (strongly agree).

In the main task, after the attitude survey, participants were first given definitions of economic migrants, family class migrants, temporary foreign workers, refugees, and international students based on the definitions provided by Immigration and Refugee Citizenship Canada (see "Glossary"), and asked to indicate what country the majority of these different types of migrants come from using an open-ended response.

Subtle animalistic and mechanistic dehumanization was measured by assessing the extent to which participants ascribed various secondary traits to *Canadians in general*, followed by *economic migrants*, *family class migrants*, *temporary foreign workers*, *refugees*, and *international students* in randomized order using a scale adapted from Haslam et al. (2005). Subtle animalistic dehumanization was measured using desirable (broad-minded, humble, polite, thorough) and undesirable (disorganized, ignorant, rude, stingy) traits rated to be highly indicative of human uniqueness but not human nature. Subtle mechanistic dehumanization was measured using desirable (active, curious, friendly, fun-loving) and undesirable (impatient, impulsive, jealous, shy) traits rated to be highly indicative of human nature, but not human uniqueness. Specifically, participants were asked *"As viewed by Canadian society, how [trait] are [group]?"* We adapted this wording from common surveys assessing beliefs in stereotypes to minimize

socially desirable responding (e.g., Stereotype Content Model, Fiske et al., 2002). Participants responded using a 7-point scale from 1(not at all) to 7(extremely), with lower scores indicating greater subtle dehumanization. Reliability scores for each subscale by target group is summarized in Table 5.1. With the exception of undesirable human nature trait ratings for international students, the reliability for all trait ratings across target groups were at an acceptable range between .66 to .87. Lastly, participants were asked to assess the extent to which each trait was "unique to humans and not experienced by animals" and the extent to which each trait was "essential to human nature (what most characterizes being human)" on a 7-point scale ranging from 1 (Completely shared with animals / Not at all essential to human nature) to 7 (Uniquely human / Essential to human nature).

Blatant animalistic and mechanistic dehumanization was assessed by measuring the extent to which people explicitly likened various groups to animals and machines (Bai et al. 2021, Kteily et al., 2015). For each measure, participants were shown an image with five figures. For animalistic dehumanization, the figure depicted the evolution of humanity, with the first image starting from chimps, to early hominids, to modern humans. For mechanistic dehumanization, the figure depicted a calculator, followed by a laptop, a simple robot, complex robot, and a human. Participants were instructed (mechanistic dehumanization instructions in square brackets):

> *"People [and entities] can vary in how human-like [machine-like] they seem. Some people seem highly evolved [mechanical] whereas others seem no different than lower animals [average humans]. Using the image below, indicate using the sliders how evolved [mechanical versus humanized] you consider the average member of each group to be. Ratings closer to the left side of the scale indicate more animal-like [machine-like] features, and ratings closer to the right side of the scale indicate more human-like features. There is no right or wrong answer."*

Participants responded on a 101-point slider scale where 0 indicated they thought people from those groups were completely animal / machine-like and 100 indicated they thought people from those groups were completely human. The animalistic and mechanistic dehumanization scales were presented on separate pages in random order, with all sliders presented on the same page.

After completing the survey, participants were shown a debriefing form explaining the purpose of the study and redirected back to Prolific Academic to receive compensation for their participation.

5.3 Results

5.3.1 Country of Origin

Open-ended responses were cleaned and analyzed using R (CITE) and by manually going through the text responses. Though participants were asked to name a single country for each migrant category, some participants named multiple countries. Each of these countries were counted as a separate entry. Table 5.1 lists the top five countries mentioned for each group, with the percentage representing the *percentage* of participants who mentioned each country. There was great overlap in the perceptions of where economic and family-class migrants originate, with over 50% of participants mentioning either India or China. Though both India and China were seen as the major contributor for economic and family class migrants, many more economic migrants were seen as originating from Western countries like the United States and United Kingdom, whereas more family-class migrants were seen as coming from non-North American and European countries. Nearly 40% of participants mentioned Ukraine as the country where most of Canada's refugee population is coming from, reflecting current media coverage of the war in Ukraine. Syria was mentioned by nearly 30% of participants, with the majority of the other countries or regions mentioned coming from the Middle East. Temporary foreign workers were seen as predominantly originating from Mexico and India, while nearly 60% of international students were seen as originating from China, and nearly 25% from India.

Table 5.1 Top Five Perceived Countries of Origin for Migrant Groups

Economic Migrants		**Family-Class Migrants**		**Refugees**	
Country	**%**	**Country**	**%**	**Country**	**%**
India	30.08%	India	42.12%	Ukraine	40.04%
China	21.16%	China	17.01%	Syria	28.63%
United States	15.77%	Philippines	8.30%	Afghanistan	9.75%
United Kingdom	7.26%	United States	5.19%	Middle East	4.36%
Philippines	3.94%	Mexico	2.28%	Iran	3.11%

Temporary Foreign Workers		International Students	
Country	**%**	**Country**	**%**
Mexico	32.37%	China	57.05%
India	21.99%	India	24.27%
Philippines	12.66%	United States	3.53%
China	6.02%	France	2.49%
United States	2.90%	Japan	2.28%

5.3.2 Trait Ratings: Unique or Essential?

Repeated measures t-tests were conducted to examine the extent to which uniquely human traits were rated as uniquely human (vs essential to human nature), and to examine the extent to which human nature traits were rated as essential to human nature (vs uniquely human). Corroborating past findings, we see in Table 5.2 that uniquely human traits are rated to be more unique to humans and less essential to human nature. Similarly, human nature traits are also rated to be more essential to human nature than they are unique to humans.

Table 5.2 Extent to Which Traits Are Seen As "Uniquely Human" Versus "Essential to Human Nature"

Trait	Perceived as "Uniquely Human"	Perceived as "Essential to Human Nature"	*t*	*p*
Uniquely Human	4.57 (1.22)	3.61(1.12)	13.36	< .001
Human Nature	2.63 (1.13)	4.06 (1.06)	21.89	< .001

5.3.3 Profiles of Subtle Dehumanization

A 2 (trait valence: desirable, undesirable) × 2 (trait type: uniquely human, human nature) × 6 (target group: Canadians in general, economic migrants, family class migrants, refugees, temporary foreign workers, international students) repeated measures ANOVA was conducted in order to examine differences in how uniquely human traits and human nature traits are applied within and across target groups. Trait valence is included as a factor in order to account for previous findings that people are more likely to attribute desirable traits and deny undesirable traits for ingroups, but attribute undesirable traits and deny desirable traits for outgroups, regardless of trait type (Enock, Flavel, et al., 2021; Enock et al., 2021). A significant three-way interaction was found, $F(4.83, 2324.39) = 12.16$, $p < .001$, with post-hoc analyses finding a significant simple trait type × target group interaction for

both desirable $F(4.89, 2350.22) = 23.33$, $p < .001$ and undesirable $F(4.84, 2326.21) = 12.91$, $p < .001$ traits.

Holm-Bonferroni-corrected pairwise comparisons were conducted to examine patterns of subtle dehumanization within target groups (i.e., whether a group is attributed or denied uniquely human traits more than human nature traits and vice-versa) and across groups (i.e., whether one group is attributed or denied uniquely human traits or human nature traits more than another). Though we only review a subset of theoretically important comparisons due to the large number of pairwise comparisons overall, Figure 5.1A – B plot the patterns of attribution for desirable (Figure 5.1A) and undesirable (Figure 5.1B) uniquely human and human nature traits across the different groups. The data points represent the average level of attribution, and the lines represent the standard errors. Higher values mean greater attribution of uniquely human and human nature traits, indicating greater humanization. Lower values, especially across groups, mean greater denial of uniquely human and human nature traits, indicating more subtle animalistic and mechanistic dehumanization. A full table with the mean values and inferential statistics for all 72 pairwise comparisons can be found in Appendix B and C.

5.3.3.1 Within-group dehumanization

Though Enock et al. (2021a, 2021b) found that patterns of subtle trait attribution across groups mirrored ingroup-outgroup dynamics, with ingroups attributed more desirable traits and outgroups attributed more undesirable traits, there may be patterns of attribution within each group consistent with the dual model of dehumanization. That is, we hypothesized that groups that are perceived to be more competent or are selected for economic contribution would be more likely to be denied human nature traits and attributed uniquely human traits, similar to the mechanistic dehumanization of workers (Baldissari et al., 2021). Looking at Figure 5.1A and B, we see that there were no significant differences in attribution of uniquely human, versus human nature traits for family class migrants and refugees, regardless of trait desirability, $|ts|(481)$[8] = 0.34 to 2.15, $ps_{adj} > .35$. Canadians in

[8] Absolute values of the *t*-statistic is reported as the sign simply refers to whether the target group was the reference or not when conducting a pairwise comparison.

general and international students were attributed more human nature traits, relative to uniquely human traits overall, regardless of trait desirability $|ts|(481) = 3.27$ to 7.26, $ps_{adj} \leq .01$. Lastly, economic migrants and refugees were more attributed more desirable human nature traits, $|ts|(481) = 3.58$ to 6.72, $ps_{adj} < .005$, and undesirable uniquely human traits, $|ts|(481) = 4.32$ to 5.08, $ps_{adj} < .001$.

5.3.3.2 Across-group dehumanization

Looking at relative trait attribution across groups, our results were more in line with Enock et al.'s (2021a, 2021b) findings that trait-based dehumanization follows trends of ingroup favouritism and outgroup hate, rather than dehumanization. Participants were more likely to attribute desirable traits to Canadians in general relative to all migrant groups, $|ts|(481) = 5.51$ to 15.05, $ps_{adj} < .001$. In contrast, participants were more likely to attribute undesirable traits to family class migrants and refugees, relative to Canadians in general, regardless of whether these were uniquely human or human nature traits, $|ts|(481) = 3.58$ to 7.32, $ps_{adj} < .008$. International students were more likely to be attributed undesirable human nature traits $|t|(481) = 3.35$, $p_{adj} = .015$, while temporary foreign workers were more likely to be attributed undesirable uniquely human traits $|t|(481) = 3.54$, $p_{adj} = .008$, relative to Canadians in general. There were no differences in attribution of uniquely human or human nature traits between economic migrants and Canadians in general.

Looking at only the patterns of attribution across migrant groups in Figure 5.1A and B, we see that our hypothesis that immigrants selected for economic reasons (i.e., economic migrants, temporary foreign workers, and international students) would experience greater subtle mechanistic dehumanization (i.e., denial of human nature traits) compared non-economic migrants (family class migrants, refugees) does not appear to hold. Rather, economically-selected migrants are more likely to be attributed desirable human nature traits relative to non-economic migrants, $|ts|(481) = 4.26$ to 8.86, $ps_{adj} < .001$. Similarly, family class migrants and refugees were more strongly attributed undesirable human nature traits relative to economic migrants, $|ts|(481) = 5.02$ to 6.80, $ps_{adj} < .001$.

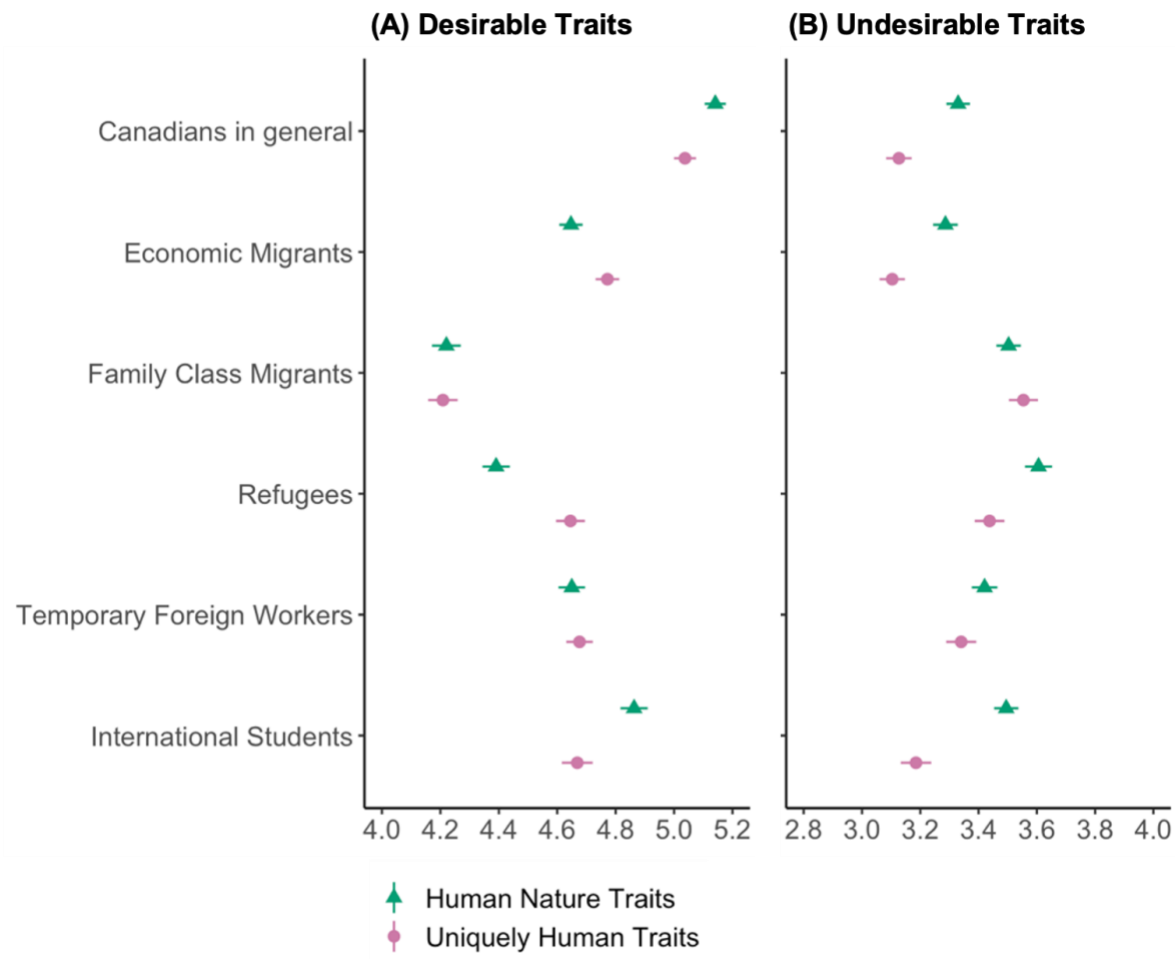

Figure 5.1 Patterns of Subtle Dehumanization of Target Immigrant Groups
Note: Points represent the mean values and lines represent the standard errors.

5.3.4 Profiles of Blatant Dehumanization

A 2 (dehumanization type: animalistic, mechanistic) × 6 (target group: Canadians in general, economic migrants, family class migrants, refugees, temporary foreign workers, international students) repeated measures ANOVA was conducted to examine patterns of dehumanization within and across target groups. There was a significant two-way interaction between dehumanization type and target group, $F(3.19, 1529.78) = 57.70$, $p < .001$. Bonferroni-corrected pairwise comparisons were conducted to analyze patterns of dehumanization across groups (e.g., if one group is more dehumanized animalistically / mechanistically relative to other groups) and within groups (e.g., if a target group experiences more animalistic versus mechanistic dehumanization). Patterns of (de)humanization are

graphed in Figure 5.2. Each data point represents the average level of (de)humanization of each target group across participants, with the lines representing standard errors. Higher values mean that target groups were seen as more human, while lower values indicate that target groups were seen as more similar to animals or machines.

Holm-Bonferroni-corrected pairwise comparisons were conducted to examine patterns of blatant dehumanization within target groups (i.e., whether a group is viewed more animalistically or mechanistically) and across groups (i.e., whether one group is more animalistically or mechanistically dehumanized, relative to each other). Figure 5.2 plot the pattern of animalistic and mechanistic dehumanization, with higher values indicate greater attributions of humanity, and lower values indicate participants viewed groups to be more animalistic or mechanistic. Though we only review a subset of comparisons of interest below, the full table can be viewed in Appendix D. Within-group dehumanization

There is some support for our hypothesis that migrants selected for economic reasons or those otherwise perceived to be skilled (economic migrants, temporary foreign workers, and international students) would be more mechanistically, versus animalistically dehumanized. That is, economic migrants, temporary foreign workers, and international students experienced greater mechanistic (versus animalistic) dehumanization overall, $|ts|(481) = 9.56$ to 12.69, $p_{adj} < .001$, while there were no significant differences in mechanistic and animalistic dehumanization of family class migrants and refugees, $|ts|(481) = 0.25$ to 2.74, $p_{adj} > .05$. Interestingly, people dehumanized Canadians in general more mechanistically than animalistically, $t(481) = 5.30$, $p < .001$. As we will see in the next section, however, Canadians are mechanistically dehumanized to the same degree as non-economic migrants (i.e., family-class migrants and refugees), while economically selected migrants are more mechanistically dehumanized overall.

5.3.4.1 Across-group dehumanization

Looking at patterns of mechanistic dehumanization, we see that people's perceptions clustered around two main groups. The first group can be roughly classified as migrant groups that are selected for economic contribution (i.e., economic migrants, temporary foreign workers) or are generally perceived to be highly competent (e.g., international students) and were perceived similarly in terms of mechanistic dehumanization, $|ts|(481) =$

0.04 to 1.35, $p_{adj} = 1.00$. The second group consists of immigrant groups that are not typically viewed as having been selected for economic reasons (i.e., family class migrants and refugees) or Canadians in general, and also did not differ in terms of mechanistic dehumanization relative to each other, $|ts|(481) = 0.75$ to 2,85, $p_{adj} \geq .05$. Consistent with our hypotheses that migrant groups that are selected for economic reasons would be more mechanistically dehumanized, we found that economic migrants, temporary foreign workers, and international students were more mechanistically dehumanized relative to family class migrants, refugees, and Canadians in general.

In terms of animalistic dehumanization, we found that groups that groups that are typically perceived to be less skilled and educated tended to be more animalistically dehumanized. There were no significant difference in the animalistic dehumanization of economic migrants relative to Canadians in general, $t(481) = 0.70$, $p = 1.00$, and all other groups were more animalistically dehumanized relative to these two groups, $|ts|(481) = 3.30$ to 7.96, $p_{adj} \leq .01$. Next, international students were less animalistically dehumanized relative to family class migrants, temporary foreign workers, and refugees, $|ts|(481) = 3.71$ to 6.11, $p_{adj} < .005$. While temporary foreign workers are typically selected specifically to fill labour shortages, they typically perceived to come from "poorer" countries (Mooten, 2020), and consequently are stereotyped to be low in competence (Lee & Fiske, 2006). Not surprisingly then, there were no differences in the animalistic dehumanization of family class migrants and temporary foreign workers, $t(481) = 0.24$, $p = 1.00$—however both these groups were less animalistically dehumanized relative to refugees, $|ts|(481) = 3.79$ to 3.83, $p_{adj} < .005$.

Taken together, these results demonstrate that mechanistic and animalistic dehumanization are informed by different sets of beliefs and stereotypes. While migrant groups that are seen as economically beneficial or high in competence tend to be mechanistically dehumanized, those that are seen as low in competence are more animalistically dehumanized, regardless of (potential) economic contribution. This suggests that perceived ability to contribute to the economy is an important dimension of how people perceive immigrants, and may be distinct from perceptions of competence.

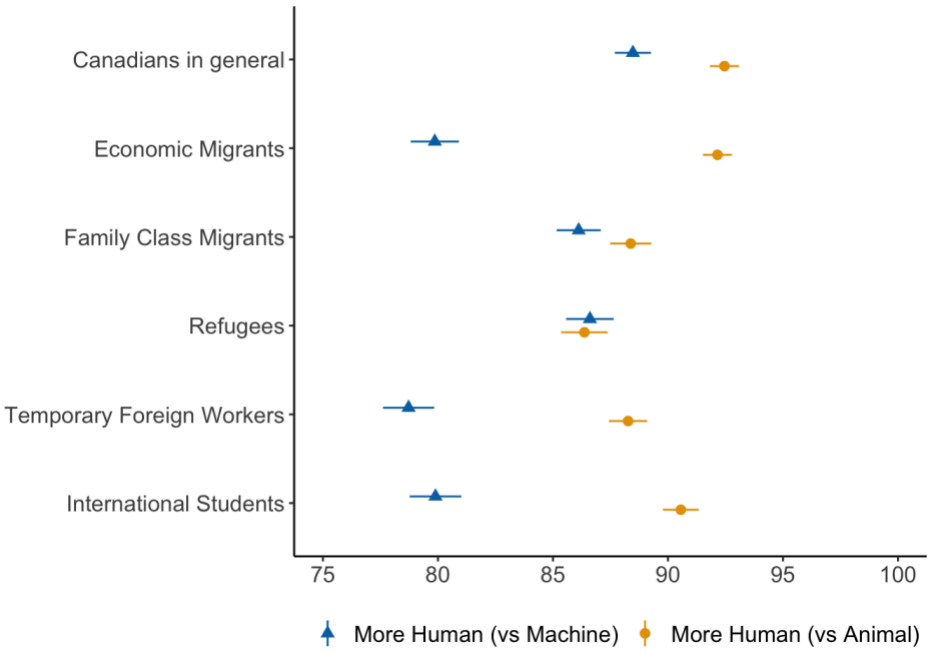

Figure 5.2 Blatant Animalistic and Mechanistic Dehumanization of Immigrant Groups
Notes. Points represent mean values and lines represent standard errors.

5.3.5 Interaction with Economic Thinking and Cultural Enrichment Beliefs

5.3.5.1 Analytic Strategy

The relationship between economic thinking, cultural enrichment beliefs, and different forms of dehumanization were modeled with a linear mixed effects model using the lmer package in R (Bates et al., 2015). Target groups were clustered within participants with a cross-level interaction between economic thinking / cultural enrichment beliefs and target's group membership. There were not enough observations to estimate the random slopes for the target's group membership, and these were left out of the model. The simple slopes of significant interactions were probed following Aiken & West's (1991) recommendations by looking at the effects of target group membership at both low (–1 SD) and high (+1 SD) levels of economic thinking and cultural enrichment beliefs using the emmeans package in R (Lenth, 2022). Separate regression models were constructed for the attribution of desirable and undesirable uniquely human and human nature traits, as well as blatant and mechanistic dehumanization.

5.3.5.2 Uniquely Human Traits

The estimated marginal means of people's attributions of desirable and undesirable uniquely human traits at high and low levels of economic thinking and cultural enrichment beliefs are plotted in Figure 5.3. There was a significant interaction between target group and cultural enrichment beliefs $F(5, 2395) = 3.76$, $p = .002$ on the attribution of desirable human nature traits. However, there was no interaction between target group and economic thinking, $F(5, 2395) = 1.90$, $p = .091$, nor was there a main effect of economic thinking, $F(1, 479) = 1.61$, $p < .205$ on the attribution of uniquely human traits. In contrast, there was a significant interaction between target group and economic thinking on the attribution of undesirable uniquely human traits, $F(5, 2395) = 2.65$, $p = .021$, but no interaction between target group and cultural enrichment beliefs, $F(5, 2395) = 0.94$, $p = .457$. While there was no interaction with target admission category, there was a main effect of cultural enrichment beliefs on people's attribution of undesirable uniquely human traits, $F(1, 479) = 23.74$, $p < .001$. The Tukey's corrected pairwise comparisons are described below.

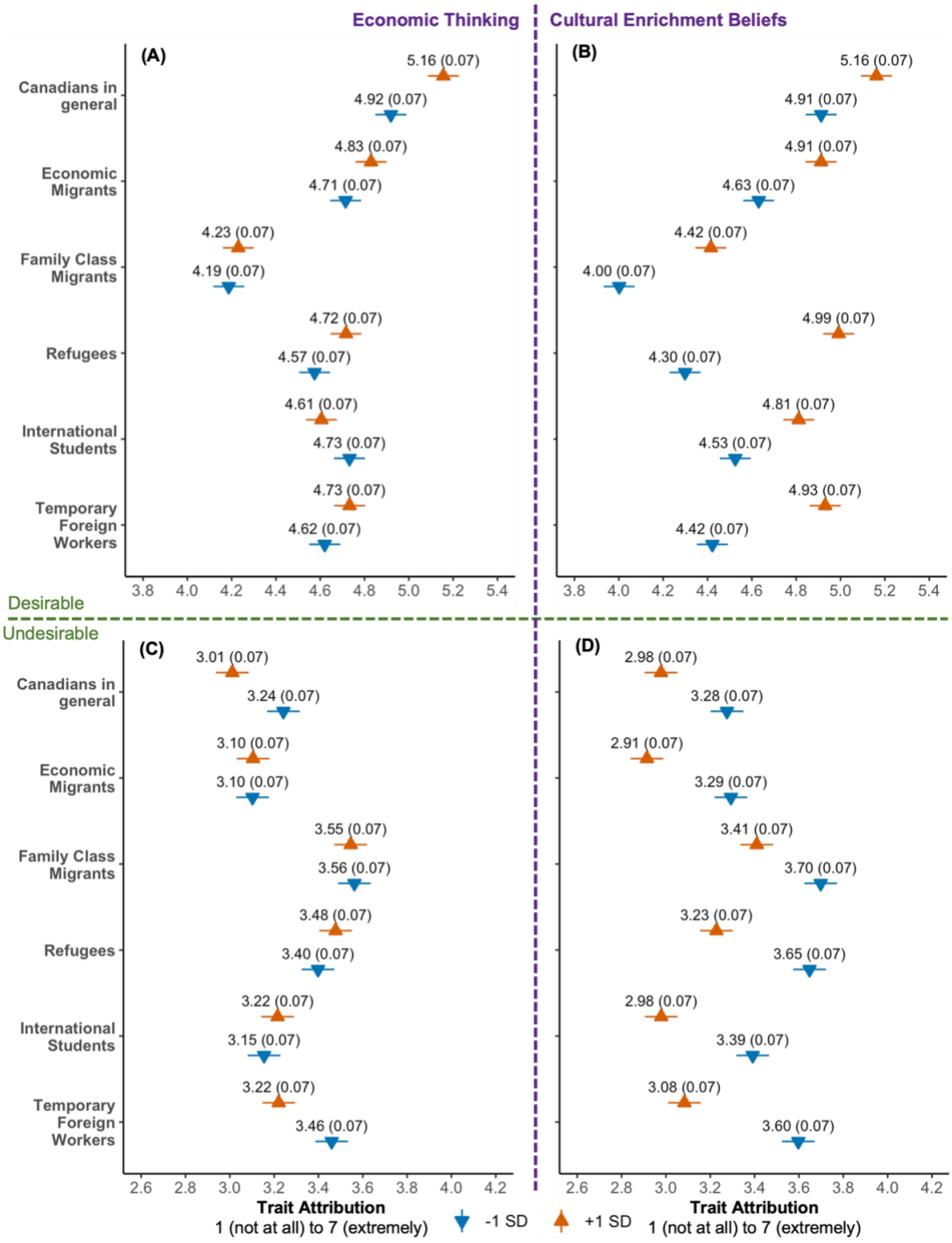

Figure 5.3 ETCEI and Attribution of Uniquely Human Trait Towards Immigrants

Notes. Values represent estimated marginal means (standard errors) of desirable (A, B) and undesirable (C, D) uniquely human trait ratings at +1 SD (high) and –1 SD (low) of average economic thinking (A, C) and cultural enrichment beliefs (B, D) scores.

5.3.5.2.1 Desirable Uniquely Human Traits

In terms of absolute levels of dehumanization *within target groups* (see Table 5.3 below), those who scored higher on cultural enrichment beliefs tended to attribute more desirable uniquely human traits to family class migrants, refugees, temporary foreign workers, and international students, compared to those who scored lower on cultural enrichment beliefs. There were no difference in attribution of desirable human nature traits to economic migrants and Canadians in general as a function of cultural enrichment beliefs.

In terms of relative effects *between target groups* (see Table 5.3 below), those who score high on cultural enrichment beliefs attributed uniquely human traits more to Canadians in general compared to family class migrants and international students. There were no differences in relative attribution between Canadians in general, refugees, and temporary foreign workers. Additionally, those who score high on cultural enrichment beliefs were also more likely to attribute desirable uniquely human traits to economic migrants, refugees, international students, and temporary foreign workers compared to family class migrants, but were rated similarly to each other. Those who score low on cultural enrichment beliefs were more likely to attribute desirable uniquely human traits to Canadians in general compared to all other migrant groups. Additionally, those who score low on cultural enrichment beliefs were also more likely to attribute desirable uniquely human traits to economic migrants compared to family class migrants and refugees. Finally, those who score low on cultural enrichment beliefs were more likely attribute uniquely human traits to those refugees, international students, and temporary foreign workers compared to family class migrants.

Table 5.3 Pairwise Comparisons for Desirable Uniquely Human Trait Attribution Across Levels of ETCEI Attitudes

Contrasts	***M_D (SE)***	***d***	***t***	***p***
Main Effects				
High – Low Economic Thinking	0.09 (0.07)	0.10	1.27	0.205
Cultural Enrichment Beliefs × Target Admission Category Interaction				
Within Targets				
High - Low Cultural Enrichment Beliefs				
Canadians in general	0.25 (0.11)	0.30	2.35	.440
Economic Migrants	0.28 (0.11)	0.34	2.66	.250

Contrasts	M_D (SE)	d	t	p
Family Class Migrants	0.41 (0.11)	0.50	3.90	.006
Refugees	0.69 (0.11)	0.83	6.54	<.001
International Students	0.29 (0.11)	0.34	2.70	.226
Temporary Foreign Workers	0.51 (0.11)	0.61	4.80	<.001
Between Targets				
High Cultural Enrichment Beliefs				
Canadians in general –				
Economic Migrants	0.25 (0.08)	0.30	3.02	.102
Family Class Migrants	0.75 (0.08)	0.90	9.05	<.001
Refugees	0.17 (0.08)	0.20	2.06	.650
International Students	0.35 (0.08)	0.42	4.24	.001
Temporary Foreign Workers	0.23 (0.08)	0.28	2.80	.180
Economic Migrants –				
Family Class Migrants	0.5 (0.08)	0.60	6.03	<.001
Refugees	-0.08 (0.08)	0.09	-0.96	.998
International Students	0.10 (0.08)	0.12	1.22	.987
Temporary Foreign Workers	-0.02 (0.08)	0.02	-0.22	1.000
Family Class Migrants –				
Refugees	-0.58 (0.08)	0.69	-6.99	<.001
International Students	-0.4 (0.08)	0.48	-4.81	<.001
Temporary Foreign Workers	-0.52 (0.08)	0.62	-6.25	<.001
Refugees –				
International Students	0.18 (0.08)	0.22	2.18	.564
Temporary Foreign Workers	0.06 (0.08)	0.07	0.74	1.000
International Students –				
Temporary Foreign Workers	-0.12 (0.08)	0.14	-1.44	.955
Low Cultural Enrichment Beliefs				
Canadians in general –				
Economic Migrants	0.28 (0.08)	0.34	3.41	.032
Family Class Migrants	0.91 (0.08)	1.09	11.04	<.001
Refugees	0.61 (0.08)	0.74	7.44	<.001
International Students	0.39 (0.08)	0.46	4.69	<.001
Temporary Foreign Workers	0.49 (0.08)	0.59	5.95	<.001
Economic Migrants –				
Family Class Migrants	0.63 (0.08)	0.75	7.62	<.001
Refugees	0.33 (0.08)	0.40	4.03	.003
International Students	0.11 (0.08)	0.13	1.28	.982
Temporary Foreign Workers	0.21 (0.08)	0.25	2.53	.319
Family Class Migrants –				
Refugees	-0.3 (0.08)	0.36	-3.60	.017
International Students	-0.52 (0.08)	0.63	-6.34	<.001

Contrasts	M_D (SE)	*d*	*t*	*p*
Temporary Foreign Workers	-0.42 (0.08)	0.50	-5.09	<.001
Refugees –				
International Students	-0.23 (0.08)	0.27	-2.75	.204
Temporary Foreign Workers	-0.12 (0.08)	0.15	-1.49	.943
International Students –				
Temporary Foreign Workers	0.10 (0.08)	0.12	1.25	.984

Note. There were no Economic Thinking × Target Admission Category interactions, so only the main effects of Economic Thinking are reported. Comparisons follow recommendations by Aiken & West (1991) to examine simple slopes at –1 SD (low) and +1 SD (high) of the average score for economic thinking and cultural enrichment beliefs. Positive values indicate greater attribution for the reference group relative to the comparison; negative values indicate greater attribution for the comparison group relative to the reference. P-values are Tukey's HSD corrected for multiple comparisons.

5.3.5.2.2 Undesirable Uniquely Human Traits

In terms of relative attribution *within target groups* (see Table 5.4 below), we see that there is a main effect of cultural enrichment beliefs such that those who score lower on this measure more strongly attributed undesirable traits regardless of target group. However, there were no differences in target ratings among those who score high, versus those who score low, in terms of economic thinking. Rather, there were differences in overall perceptions *across target groups* (see Table 5.4 below). That is, regardless of one's level of economic thinking, people tended to attribute more undesirable traits to family class migrants relative to most other groups, with the exception of temporary foreign workers. There were a few differences in patterns of attribution among those who score high and low in economic thinking. For those who score high on economic thinking, they were also more likely to attribute undesirable uniquely human traits to family class migrants, relative to temporary foreign workers—however they viewed temporary foreign workers and international students similarly. For those who score low on economic thinking, we see the opposite pattern. That is, those who score low on economic thinking more strongly attributed undesirable uniquely human traits to temporary foreign workers relative to international students, but there were no significant differences in how family class migrants and temporary foreign workers were perceived.

Table 5.4 Pairwise Comparisons for Undesirable Uniquely Human Trait Attribution Across Levels of ETCEI Attitudes

Contrasts	M_D (SE)	*d*	*t*	*p*
Main Effects				
High – Low Cultural Enrichment Beliefs	-0.39 (0.08)	0.47	-4.89	< .001
Economic Thinking × Target Admission Category Interaction				
Within Targets				
High - Low Economic Thinking				
Canadians in general	-0.23 (0.11)	0.28	-2.06	.653
Economic Migrants	0.00 (0.11)	0.00	0.02	1.000
Family Class Migrants	-0.02 (0.11)	0.02	-0.15	1.000
Refugees	0.08 (0.11)	0.10	0.71	1.000
International Students	0.06 (0.11)	0.07	0.55	1.000
Temporary Foreign Workers	-0.24 (0.11)	0.29	-2.13	.599
Between Targets				
High Economic Thinking				
Canadians in general –				
Economic Migrants	-0.09 (0.08)	0.11	-1.15	.992
Family Class Migrants	-0.53 (0.08)	0.65	-6.57	<.001
Refugees	-0.47 (0.08)	0.57	-5.73	<.001
International Students	-0.20 (0.08)	0.25	-2.51	.331
Temporary Foreign Workers	-0.21 (0.08)	0.25	-2.58	.294
Economic Migrants –				
Family Class Migrants	-0.44 (0.08)	0.54	-5.42	<.001
Refugees	-0.37 (0.08)	0.45	-4.58	<.001
International Students	-0.11 (0.08)	0.13	-1.36	.970
Temporary Foreign Workers	-0.12 (0.08)	0.14	-1.42	.959
Family Class Migrants –				
Refugees	0.07 (0.08)	0.08	0.84	1.000
International Students	0.33 (0.08)	0.40	4.06	.003
Temporary Foreign Workers	0.32 (0.08)	0.40	4.00	.004
Refugees –				
International Students	0.26 (0.08)	0.32	3.22	.059
Temporary Foreign Workers	0.26 (0.08)	0.31	3.16	.071
International Students –				
Temporary Foreign Workers	0.00 (0.08)	0.01	-0.06	1.000
Low Economic Thinking				
Canadians in general –				
Economic Migrants	0.14 (0.08)	0.17	1.71	.862

Contrasts	M_D (SE)	*d*	*t*	*p*
Family Class Migrants	-0.32 (0.08)	0.39	-3.94	.005
Refugees	-0.16 (0.08)	0.19	-1.92	.746
International Students	0.09 (0.08)	0.11	1.07	.996
Temporary Foreign Workers	-0.22 (0.08)	0.27	-2.68	.237
Economic Migrants –				
Family Class Migrants	-0.46 (0.08)	0.56	-5.65	<.001
Refugees	-0.30 (0.08)	0.36	-3.64	.015
International Students	-0.05 (0.08)	0.06	-0.64	1.000
Temporary Foreign Workers	-0.36 (0.08)	0.43	-4.39	<.001
Family Class Migrants –				
Refugees	0.16 (0.08)	0.20	2.02	.682
International Students	0.41 (0.08)	0.50	5.01	<.001
Temporary Foreign Workers	0.1 (0.08)	0.12	1.26	.984
Refugees –				
International Students	0.24 (0.08)	0.30	2.99	.111
Temporary Foreign Workers	-0.06 (0.08)	0.07	-0.76	1.000
International Students –				
Temporary Foreign Workers	-0.31 (0.08)	0.37	-3.75	.010

Note. There were no Cultural Enrichment Beliefs × Target Admission Category interactions, so only the main effects of cultural enrichment beliefs are reported. Comparisons follow recommendations by Aiken & West (1991) to examine simple slopes at –1 SD (low) and +1 SD (high) of the average score for economic thinking and cultural enrichment beliefs. Positive values indicate greater attribution for the reference group relative to the comparison; negative values indicate greater attribution for the comparison group relative to the reference. P-values are Tukey's HSD corrected for multiple comparisons.

5.3.5.3 Human Nature Traits

The estimated marginal means of people's attributions of desirable and undesirable human nature traits at high and low levels of economic thinking and cultural enrichment beliefs are plotted in Figure 5.3. For the attribution of desirable human nature traits, there was only a main effect of economic thinking, $F(1, 479) = 6.40$, $p = .012$, cultural enrichment beliefs, $F(1, 479) = 32.08$, $p < .001$, and target group, $F(1, 479) = 84.82$, $p < .001$, with no 2-way interactions between target group and economic thinking, $F(1, 2395) = 2.15$, $p = .057$, or cultural enrichment beliefs, $F(1, 2395) = 1.41$, $p = .213$. For the attribution of undesirable human nature traits, there were only main effects of target group, $F(1, 479) = 13.53$, $p < .001$, and cultural enrichment beliefs, $F(1, 479) = 17.85$, $p < .001$, but not economic thinking, $F(1, 479) = 0.06$, $p = .810$. There were no 2-way interactions between target group and economic thinking or cultural enrichment beliefs. The pairwise comparisons for these main effects are described below.

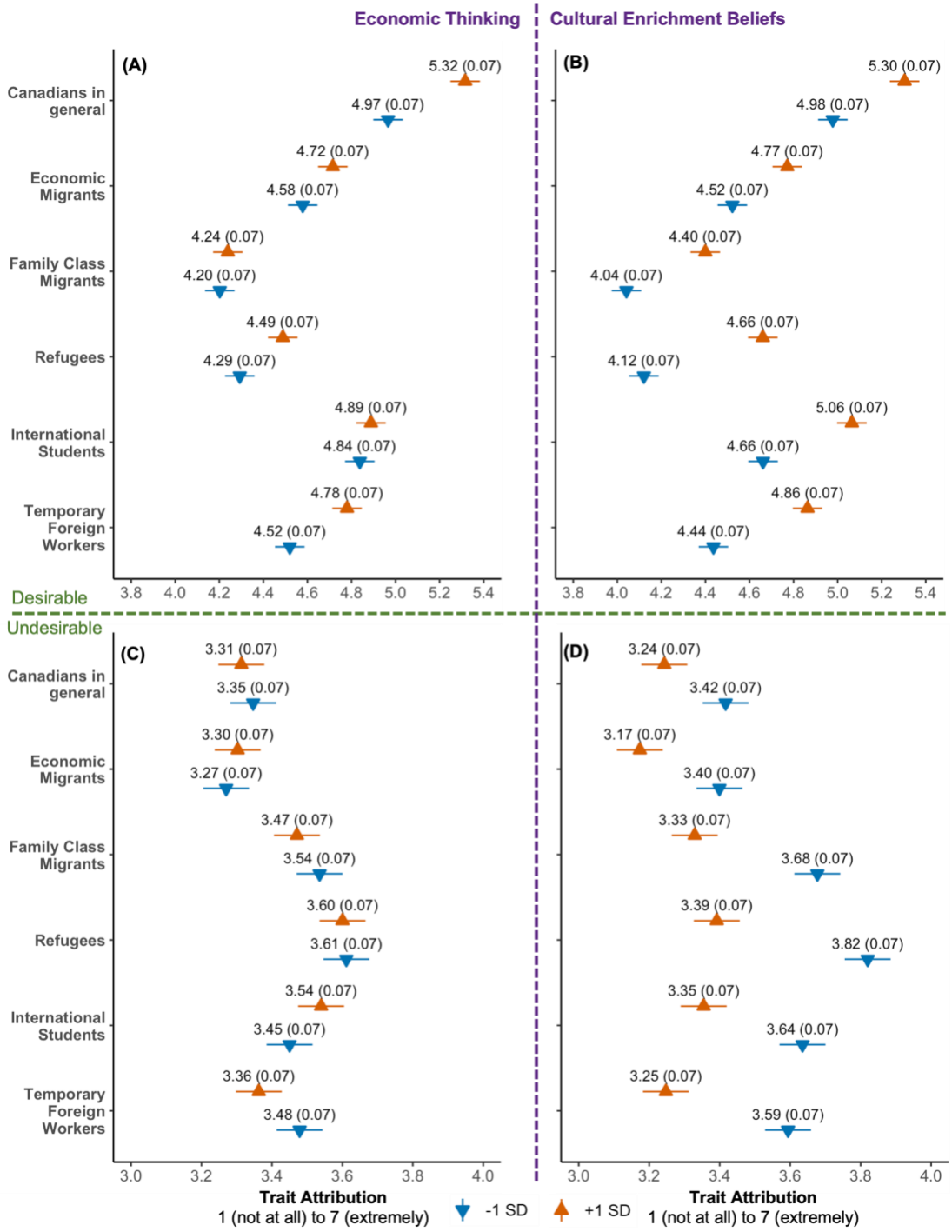

Figure 5.4 ETCEI and Attribution of Human Nature Trait Towards Immigrants

Notes. Values represent estimated marginal means (standard errors) of desirable (A, B) and undesirable (C, D) human nature trait ratings at +1 SD (high) and –1 SD (low) of average economic thinking (A, C) and cultural enrichment beliefs (B, D) scores.

5.3.5.3.1 Desirable Human Nature Traits

The pairwise comparisons for the effects of target group, economic thinking, and cultural enrichment beliefs are summarized in Table 5.5. Overall, those who scored higher on economic thinking and cultural enrichment beliefs were more likely to attribute desirable human nature traits overall. Looking at trait attributions across targets, there was a clear hierarchy of trait attributions. Canadians in general were more attributed desirable human nature traits compared to all migrant groups. Second, people were more likely to attribute desirable human nature traits to international students compared to all other migrant groups, but less than Canadians in general. People were more likely to attribute desirable human nature traits to economic migrants relative to family class migrants and refugees, but not temporary foreign workers. Overall, people seem to be least likely to attribute desirable human nature traits to family class migrants and refugees.

Table 5.5 Pairwise comparisons for the attribution of desirable human nature traits.

Contrasts	***M_D (SE)***	***d***	***t***	***p***
High – Low Economic Thinking	0.17 (0.07)	0.29	2.53	.012
High – Low Cultural Enrichment Beliefs	0.38 (0.07)	0.49	5.66	<.001
Canadians in general –				
Economic Migrants	0.49 (0.05)	0.63	9.81	<.001
Family Class Migrants	0.92 (0.05)	1.18	18.27	<.001
Refugees	0.75 (0.05)	0.96	14.90	<.001
International Students	0.28 (0.05)	0.36	5.52	<.001
Temporary Foreign Workers	0.49 (0.05)	0.63	9.75	<.001
Economic Migrants –				
Family Class Migrants	0.43 (0.05)	0.55	8.46	<.001
Refugees	0.26 (0.05)	0.33	5.09	<.001
International Students	-0.22 (0.05)	0.28	-4.29	<.001
Temporary Foreign Workers	0.00 (0.05)	0.00	-0.06	1.000
Family Class Migrants –				
Refugees	-0.17 (0.05)	0.22	-3.38	.010
International Students	-0.64 (0.05)	0.82	-12.75	<.001
Temporary Foreign Workers	-0.43 (0.05)	0.55	-8.52	<.001
Refugees –				
International Students	-0.47 (0.05)	0.60	-9.38	<.001
Temporary Foreign Workers	-0.26 (0.05)	0.33	-5.15	<.001
International Students –				
Temporary Foreign Workers	0.21 (0.05)	0.27	4.23	<.001

Note. There were no interactions between economic thinking or cultural enrichment beliefs and target admission category, and so only the main effects are reported. Comparisons follow recommendations by Aiken & West (1991) to examine simple slopes at –1 SD (low) and +1 SD (high) of the average score for economic thinking and cultural enrichment beliefs. Positive values indicate greater attribution for the reference group relative to the comparison; negative values indicate greater attribution for the comparison group relative to the reference. P-values are Tukey's HSD corrected for multiple comparisons.

5.3.5.3.2 Undesirable Human Nature Traits

The pairwise comparisons of the effects of target group, economic thinking, and cultural enrichment beliefs are summarized in Table 5.6. In general, there were no differences between those who scored high or low on economic thinking on their attributions of undesirable human nature traits. Those who scored higher on cultural enrichment beliefs, however, attributed undesirable human nature to others less in general, compared to those who scored lower on cultural enrichment beliefs. We find different patterns of attribution across groups for undesirable traits, compared to desirable traits. Specifically, people were less likely to attribute undesirable human nature traits to Canadians in general compared to family class migrants, refugees, and international students, but were perceived similarly to economic migrants and temporary foreign workers. People were less likely to attribute undesirable human nature traits to economic migrants compared to all other migrant groups, and were more likely to attribute undesirable human nature traits to refugees compared to temporary foreign workers. There were no other differences between groups.

Table 5.6 Pairwise comparisons for the attribution of undesirable human nature traits.

Contrasts	M_D (SE)	*d*	*t*	*p*
High – Low Economic Thinking	-0.02 (0.07)	0.02	-0.24	.811
High – Low Cultural Enrichment Beliefs	-0.30 (0.07)	0.42	-4.22	<.001
Canadians in general –				
Economic Migrants	0.04 (0.05)	0.06	0.95	.932
Family Class Migrants	-0.17 (0.05)	0.24	-3.79	.002
Refugees	-0.28 (0.05)	0.39	-6.04	<.001
International Students	-0.16 (0.05)	0.23	-3.61	.004
Temporary Foreign Workers	-0.09 (0.05)	0.13	-1.99	.350
Economic Migrants –				
Family Class Migrants	-0.22 (0.05)	0.31	-4.75	<.001
Refugees	-0.32 (0.05)	0.45	-6.99	<.001
International Students	-0.21 (0.05)	0.29	-4.56	<.001
Temporary Foreign Workers	-0.13 (0.05)	0.19	-2.94	.039

Contrasts	M_D (SE)	*d*	*t*	*p*
Family Class Migrants –				
Refugees	-0.10 (0.05)	0.14	-2.25	.216
International Students	0.01 (0.05)	0.01	0.18	1.000
Temporary Foreign Workers	0.08 (0.05)	0.12	1.80	.463
Refugees –				
International Students	0.11 (0.05)	0.16	2.43	.147
Temporary Foreign Workers	0.19 (0.05)	0.26	4.05	<.001
International Students –				
Temporary Foreign Workers	0.07 (0.05)	0.10	1.62	.583

Note. There were no interactions between attitudes and target admission category, and so only the main effects were reported. Comparisons follow recommendations by Aiken & West (1991) to examine simple slopes at –1 SD (low) and +1 SD (high) of the average score for economic thinking and cultural enrichment beliefs. Positive values indicate greater attribution for the reference group relative to the comparison; negative values indicate greater attribution for the comparison group relative to the reference. P-values are Tukey's HSD corrected for multiple comparisons.

5.3.5.4 Blatant Animalistic Dehumanization

The estimated marginal means for people's ratings of humanness (vs animalness) of various groups at high and low levels of economic thinking and cultural enrichment beliefs is visualized in Figure 5.5, where lower scores indicate greater animalistic dehumanization and higher scores indicate greater humanization. There were significant interactions between target group and economic thinking, $F(1, 2390) = 7.35$, $p < .001$, as well as target group and cultural enrichment beliefs, $F(1, 2390) = 5.14$, $p < .001$, on people's levels of animalistic dehumanization. Pairwise comparisons are summarized below and presented in Table 5.7.

In general, there were no differences between those who score high and those who score low on economic thinking and animalistic dehumanization within target ratings—instead there were differences in patterns of dehumanization across target ratings for those who score high versus low in this trait. Those who score high on economic thinking were more likely to dehumanize all migrant groups relative to Canadians in general and economic migrants—the latter two being rated similarly in terms of humanness (vs animalness). Those who scored high on economic thinking were also more likely to dehumanize refugees compared to family class migrants, international students, and temporary foreign workers. Lastly, there were no significant differences in perceptions of family class migrants, temporary foreign workers, and international students relative to each other for those who score high on economic thinking. For those who score low in economic thinking, there were

generally no differences in people's ratings of humanness (vs animalness) across all groups, with the exception of refugees. Refugees were more animalistically dehumanized relative to international students and economic migrants, but not compared to any other group.

In contrast to economic thinking, those who score high on cultural enrichment beliefs were more likely to attribute humanness (vs animalness) within targets relative to those who score low on this trait. In addition, there were differences in patterns of dehumanization across targets for those who score high versus low in cultural enrichment beliefs. In general, those who score high on cultural enrichment beliefs did not differ in their levels of dehumanization across groups. The one exception is their ratings of refugees, where those who scored high on cultural enrichment beliefs were more likely to humanize (vs animalize) refugees compared to Canadians in general and economic migrants. For those who score low on cultural enrichment beliefs, ratings appeared to cluster in two groups, with the first group consisting of Canadians in general, economic migrants, and international students, and the second group consisting of family class migrants, refugees, and temporary foreign workers. While there were no differences in ratings within each group, those in the latter group were more animalistically dehumanized compared to those in the former.

Table 5.7 Pairwise Comparisons Of Animalistic Dehumanization Across Levels Of ETCEI Attitudes

	Economic Thinking				Cultural Enrichment Beliefs			
Contrasts	***M_D (SE)***	***d***	***t***	***p***	***M_D (SE)***	***d***	***t***	***p***
Within Targets								
High – Low Moderator								
Canadians in general	-0.08 (1.77)	0.01	-0.05	1.000	6.68 (1.77)	0.75	3.77	.009
Economic Migrants	-1.62 (1.77)	0.18	-0.92	.999	8.21 (1.77)	0.92	4.64	<.001
Family Class Migrants	-4.63 (1.77)	0.52	-2.62	.272	12.15 (1.77)	1.37	6.87	<.001
Refugees	-7.13 (1.77)	0.80	-4.03	.004	10.76 (1.77)	1.21	6.08	<.001
Int. Student	-4.82 (1.77)	0.54	-2.72	.218	7.47 (1.77)	0.84	4.22	.002
TFW	-4.98 (1.77)	0.56	-2.81	.176	10.42 (1.77)	1.17	5.88	<.001
Across Targets								
High level Moderator								
Canadians in general –								
Economic Migrants	1.08 (0.88)	0.12	1.22	.987	-0.46 (0.88)	0.05	-0.52	1.000
Family Class Migrants	6.35 (0.88)	0.71	7.22	<.001	1.34 (0.88)	0.15	1.52	.935
Refugees	9.61 (0.88)	1.08	10.93	<.001	4.05 (0.88)	0.46	4.60	<.001
Int. Student	4.26 (0.88)	0.48	4.85	<.001	1.5 (0.88)	0.17	1.71	.866
TFW	6.64 (0.88)	0.75	7.55	<.001	2.32 (0.88)	0.26	2.63	.261

	Economic Thinking				Cultural Enrichment Beliefs			
Contrasts	***M_D (SE)***	***d***	***t***	***p***	***M_D (SE)***	***d***	***t***	***p***
Economic Migrants –								
Family Class Migrants	5.27 (0.88)	0.59	6.00	<.001	1.8 (0.88)	0.20	2.04	.663
Refugees	8.53 (0.88)	0.96	9.70	<.001	4.51 (0.88)	0.51	5.13	<.001
Int. Student	3.19 (0.88)	0.36	3.62	.016	1.96 (0.88)	0.22	2.23	.528
TFW	5.56 (0.88)	0.63	6.32	<.001	2.78 (0.88)	0.31	3.16	.070
Family Class Migrants –								
Refugees	3.26 (0.88)	0.37	3.71	.012	2.71 (0.88)	0.31	3.08	.087
Int. Student	-2.09 (0.88)	0.23	-2.37	.424	0.16 (0.88)	0.02	0.19	1.000
TFW	0.29 (0.88)	0.03	0.33	1.000	0.98 (0.88)	0.11	1.11	.994
Refugees –								
Int. Student	-5.35 (0.88)	0.60	-6.08	<.001	-2.55 (0.88)	0.29	-2.90	.143
TFW	-2.97 (0.88)	0.33	-3.38	.035	-1.73 (0.88)	0.19	-1.97	.716
Int. Student –								
TFW	2.38 (0.88)	0.27	2.70	.226	0.82 (0.88)	0.09	0.93	.999
Low level Moderator								
Canadians in general –								
Economic Migrants	-0.47 (0.88)	0.05	-0.53	1.000	1.07 (0.88)	0.12	1.22	.988
Family Class Migrants	1.8 (0.88)	0.20	2.05	.662	6.81 (0.88)	0.77	7.75	<.001
Refugees	2.56 (0.88)	0.29	2.91	.137	8.13 (0.88)	0.91	9.24	<.001
Int. Student	-0.47 (0.88)	0.05	-0.54	1.000	2.29 (0.88)	0.26	2.60	.278
TFW	1.74 (0.88)	0.20	1.97	.711	6.06 (0.88)	0.68	6.89	<.001
Economic Migrants –								
Family Class Migrants	2.27 (0.88)	0.25	2.58	.294	5.74 (0.88)	0.65	6.53	<.001
Refugees	3.03 (0.88)	0.34	3.44	.029	7.05 (0.88)	0.79	8.02	<.001
Int. Student	-0.01 (0.88)	0.00	-0.01	1.000	1.22 (0.88)	0.14	1.39	.966
TFW	2.2 (0.88)	0.25	2.50	.338	4.99 (0.88)	0.56	5.67	<.001
Family Class Migrants –								
Refugees	0.76 (0.88)	0.09	0.87	.999	1.31 (0.88)	0.15	1.49	.943
Int. Student	-2.27 (0.88)	0.26	-2.58	.290	-4.52 (0.88)	0.51	-5.14	<.001
TFW	-0.06 (0.88)	0.01	-0.07	1.000	-0.76 (0.88)	0.08	-0.86	.999
Refugees –								
Int. Student	-3.04 (0.88)	0.34	-3.45	.028	-5.84 (0.88)	0.66	-6.64	<.001
TFW	-0.83 (0.88)	0.09	-0.94	.999	-2.07 (0.88)	0.23	-2.35	.439
Int. Student –								
TFW	2.21 (0.88)	0.25	2.51	.333	3.77 (0.88)	0.42	4.28	.001

Notes. Int. Student = International Students; TFW = Temporary Foreign Workers. Comparisons follow recommendations by Aiken & West (1991) to examine simple slopes at –1 SD (low) and +1 SD (high) of the average score for economic thinking and cultural enrichment beliefs. Positive values indicate greater humanization (lower animalistic dehumanization) for the reference group relative to the comparison; negative values indicate greater humanization (lower animalistic dehumanization) for the comparison group relative to the reference. P-values are Tukey's HSD corrected for multiple comparisons.

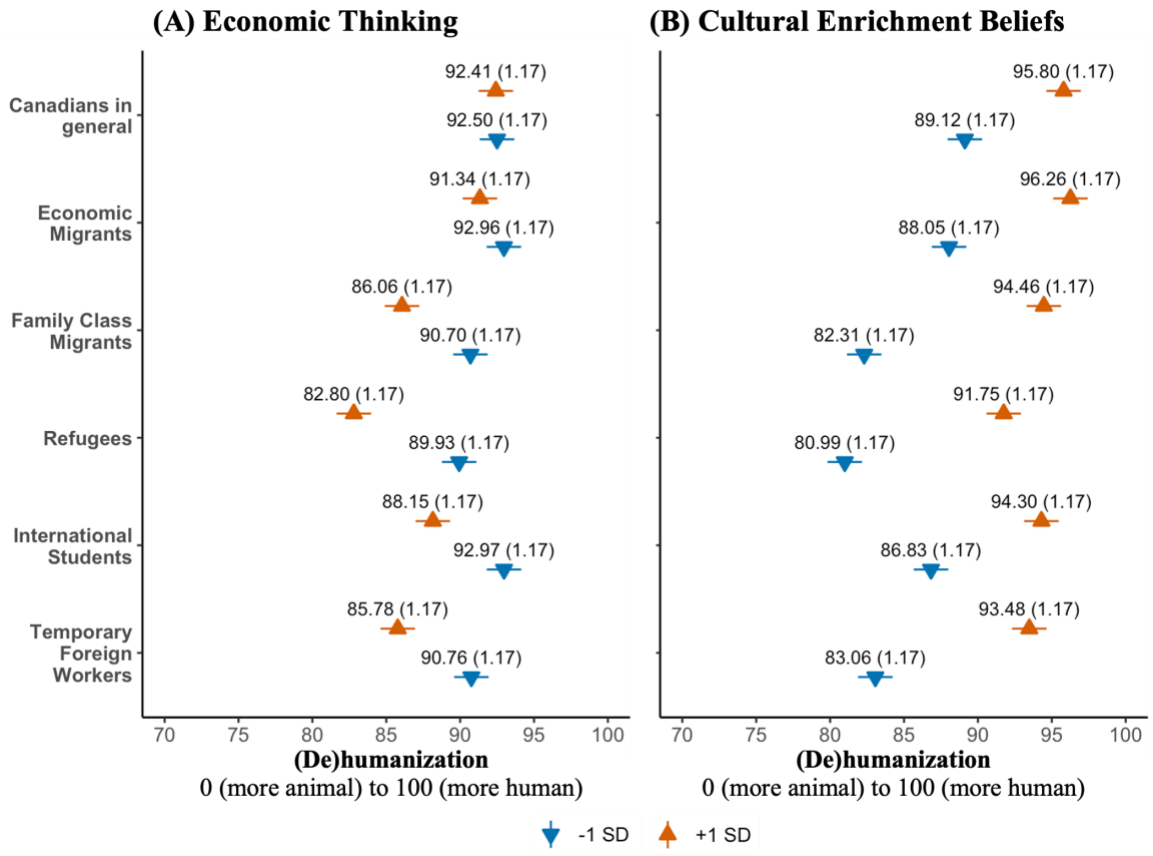

Figure 5.5 ETCEI and Blatant Animalistic Dehumanization of Immigrants
Notes. Values represent estimated marginal means (standard errors) of blatant animalistic dehumanization towards various groups by participants whose levels of economic thinking (A) and cultural enrichment beliefs (B) are –1 SD (low levels) and +1 SD (high levels) from the mean score.

5.3.5.5 Blatant Mechanistic Dehumanization

The estimated marginal means of people's ratings of how human-like (vs machine-like) they perceive various groups at high and low levels of economic thinking and cultural enrichment beliefs is visualized in Figure 5.6, where lower scores indicate greater mechanistic dehumanization. There was a significant interaction between target group and economic thinking on how human-like (vs machine-like) people perceived other groups, $F(5, 2390) = 4.44$, $p < .05$, but no interaction with target group cultural enrichment beliefs, $F(5, 2390) = 1.09$, $p = .362$. However, there was a main effect of cultural enrichment beliefs on human-like (vs machine-like) ratings, $F(1, 478) = 13.94$, $p < .001$.

The pairwise comparisons are summarized in Table 5.8. Those who score higher on cultural enrichment beliefs were more likely to perceive others as more human-like (vs

machine-like). Looking at within-target ratings for economic thinking, we find that those who score higher on economic thinking perceived all migrant groups as more machine-like than human-like, compared to those low in economic thinking. There were no differences between those who score high and low economic thinking in their perceptions of Canadians in general. Patterns of mechanistic dehumanization across targets were similar for those who scored high and low in economic thinking. The primary difference is relative dehumanization of migrant groups compared to Canadians in general. For those who score high in economic thinking, all migrant groups were mechanistically dehumanized relative to Canadians in general. In contrast, those who scored low on economic thinking only perceived international students and temporary foreign workers were mechanistically compared to Canadians in general. For participants who scored high and low on economic thinking, we see that there were no significant differences in how economic migrants, temporary foreign workers, and international students were perceived. However, these groups were more mechanistically dehumanized relative to family class migrants and refugees. In summary, patterns of relative mechanistic dehumanization across groups appear similar regardless of one's level of economic thinking. Instead, those who score high on economic thinking perceive all migrant groups, but not Canadians in general, more mechanistically.

Table 5.8 Pairwise Comparisons of Mechanistic Dehumanization Across Levels of ETCEI Attitudes

Contrasts	M_D (SE)	*d*	*t*	p_{adj}
Main Effects				
High – Low Cultural Enrichment Beliefs	6.82 (1.83)	0.48	3.73	< .001
Economic Thinking × Target Admission Category Interaction				
Within Targets				
High - Low Economic Thinking				
Canadians in general	-0.67 (2.28)	0.05	-0.29	1.000
Economic Migrants	-11.66 (2.22)	0.38	-5.26	<.001
Family Class Migrants	-7.63 (2.28)	0.54	-3.34	.041
Refugees	-9.2 (2.28)	0.65	-4.03	.003
International Students	-7.08 (2.28)	0.50	-3.10	.083
Temporary Foreign Workers	-8.95 (2.28)	0.63	-3.92	.005

Contrasts	M_D (SE)	*d*	*t*	p_{adj}
Between Targets				
High Economic Thinking				
Canadians in general –				
Economic Migrants	10.99 (1.40)	0.78	7.86	<.001
Family Class Migrants	5.83 (1.40)	0.41	4.17	.002
Refugees	6.13 (1.40)	0.43	4.38	<.001
International Students	11.79 (1.40)	0.83	8.42	<.001
Temporary Foreign Workers	13.89 (1.40)	0.98	9.92	<.001
Economic Migrants –				
Family Class Migrants	-5.16 (1.40)	0.36	-3.69	.012
Refugees	-4.86 (1.40)	0.34	-3.48	.026
International Students	0.8 (1.40)	0.06	0.57	1.000
Temporary Foreign Workers	2.89 (1.40)	0.20	2.07	.645
Family Class Migrants –				
Refugees	0.29 (1.40)	0.02	0.21	1.000
International Students	5.95 (1.40)	0.42	4.25	.001
Temporary Foreign Workers	8.05 (1.40)	0.57	5.75	<.001
Refugees –				
International Students	5.66 (1.40)	0.40	4.04	.003
Temporary Foreign Workers	7.76 (1.40)	0.55	5.55	<.001
International Students –				
Temporary Foreign Workers	2.1 (1.40)	0.15	1.50	.941
Low Economic Thinking				
Canadians in general –				
Economic Migrants	6.23 (1.40)	0.44	4.45	<.001
Family Class Migrants	-1.13 (1.40)	0.08	-0.81	1.000
Refugees	-2.4 (1.40)	0.17	-1.71	.862
International Students	5.37 (1.40)	0.38	3.84	.007
Temporary Foreign Workers	5.61 (1.40)	0.40	4.01	.004
Economic Migrants –				
Family Class Migrants	-7.36 (1.40)	0.52	-5.25	<.001
Refugees	-8.63 (1.40)	0.61	-6.16	<.001
International Students	-0.85 (1.40)	0.06	-0.61	1.000
Temporary Foreign Workers	-0.62 (1.40)	0.04	-0.44	1.000
Family Class Migrants –				
Refugees	-1.27 (1.40)	0.09	-0.91	.999
International Students	6.5 (1.40)	0.46	4.64	<.001
Temporary Foreign Workers	6.74 (1.40)	0.48	4.81	<.001
Refugees –				
International Students	7.77 (1.40)	0.55	5.55	<.001
Temporary Foreign Workers	8.01 (1.40)	0.57	5.72	<.001

Contrasts	M_D (SE)	*d*	*t*	p_{adj}
International Students –				
Temporary Foreign Workers	0.24 (1.40)	0.02	0.17	1.000

Note. There were no Cultural Enrichment Beliefs × Target Admission Category interactions, so only the main effects of cultural enrichment beliefs were reported. Comparisons follow recommendations by Aiken & West (1991) to examine simple slopes at –1 SD (low) and +1 SD (high) of the average score for economic thinking and cultural enrichment beliefs. Positive values indicate greater humanization (lower mechanistic dehumanization) for the reference group relative to the comparison; negative values indicate greater humanization (lower mechanistic dehumanization) for the comparison group relative to the reference. P-values are Tukey's HSD corrected for multiple comparisons.

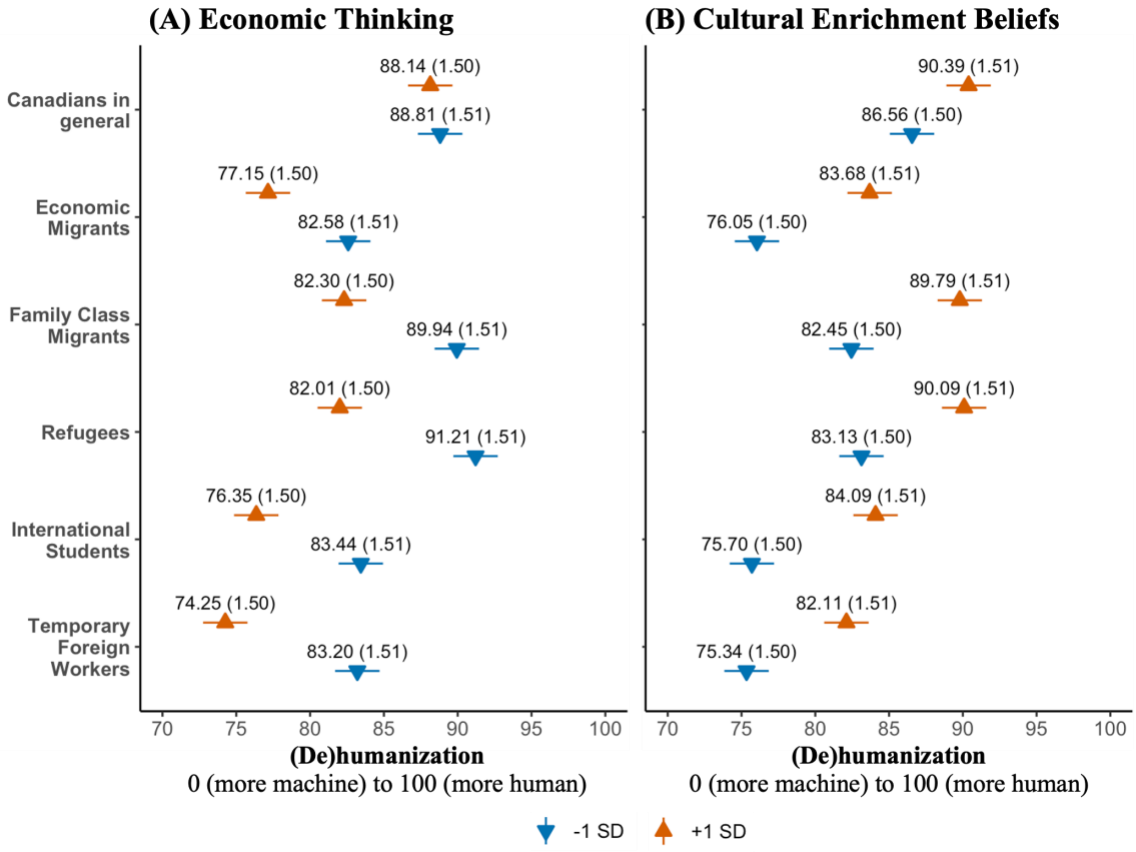

Figure 5.6 ETCEI and Blatant Mechanistic Dehumanization

Notes. Values represent estimated marginal means (standard errors) of blatant mechanistic dehumanization towards various groups by participants whose levels of economic thinking (A) and cultural enrichment beliefs (B) are –1 SD (low levels) and +1 SD (high levels) from the mean score.

5.4 Discussion

5.4.1 Patterns of Dehumanization

In this chapter, we examined differences in animalistic and mechanistic dehumanization across different migrant groups, and its association with economic thinking and cultural enrichment beliefs about immigration. To do this, we focused on both subtle trait-based dehumanization—the attribution and denial of secondary traits and emotions—and blatant dehumanization—the likening of people and groups to animals and machines. A core tenet of trait-based dehumanization is that the denial of secondary traits and emotions associated with being human, regardless of trait desirability, is a form of subtle dehumanization. Trait-based dehumanization research, however, has been critiqued in focusing only on desirable traits, and as such, the attribution of secondary traits and emotions to ingroups, and denial of secondary traits to outgroups is confounded with ingroup favouritism and outgroup derogation (Enock, Flavel, et al., 2021; Enock et al., 2021). Across multiple studies, Enock and colleagues found that when undesirable uniquely human and human nature traits are included, people are more likely to attribute desirable traits to ingroups and undesirable traits to outgroups (Enock, Flavel, et al., 2021; Enock et al., 2021). Consistent with these findings, we found that people attributed desirable traits most to Canadians in general, followed by economic migrants, with people being least likely to attribute desirable traits to family class migrants. We see this pattern mirrored for undesirable traits, where people attributed undesirable traits to family class migrants the most, with people being least likely to attribute undesirable traits to Canadians in general, followed by economic migrants. Furthermore, there were no consistent differences across migrant groups that suggested migrants who were selected for their economic contribution experienced greater mechanistic dehumanization than those who were not selected with these traits in mind.

In contrast to the trait-based dehumanization measure, we found patterns of blatant animalistic and mechanistic dehumanization consistent with our hypothesis and past theory. While derogated outgroups tend to experience both animalistic and mechanistic dehumanization, there is evidence to suggest that outgroups that are disliked but are perceived as competent experience greater mechanistic dehumanization. For example,

describing workers using machine metaphors leads to increased perceptions of worker competence (Fowler & Utych, 2021). Additionally, past research has found that East Asian Americans, who are stereotyped to be low warmth and high competence (Lee & Fiske, 2006), experience greater mechanistic dehumanization compared to Black Americans (Bai & Zhao, 2021), who are stereotyped as both low warmth and low competence (Fiske et al., 2002). Because of this, we hypothesized that migrants selected for economic contribution or those who are seen as highly competent, such as economic migrants, temporary foreign workers, and international students, would be more mechanistically dehumanized compared to other migrant groups. In line with this hypothesis, we found that economic migrants were more mechanistically, but not animalistically, dehumanized relative to Canadians in general. Similarly, refugees and family class migrants were more animalistically, but not mechanistically, dehumanized relative to Canadians in general. Though international students and temporary foreign workers were both animalistically and mechanistically dehumanized relative to Canadians in general, the level of animalistic and mechanistic dehumanization differed when comparing with other migrant groups. Specifically, migrant groups selected for economic contribution or for their skill (i.e., economic migrants, temporary foreign workers, and international students) were more mechanistically dehumanized relative to migrants who were ostensibly not selected for economic reasons (i.e., family-class migrants, refugees). Furthermore, migrant groups that were ostensibly not selected for economic reasons were perceived to be more animalistic compared to those who were selected for their economic ability.

In contrast to our hypothesis that migrants selected for their skill and potential economic contribution would experience more mechanistic (vs animalistic) dehumanization overall, we found that all groups were more mechanistically dehumanized. That is, people saw Canadians in general, economic migrants, family class migrants, refugees, temporary foreign workers, and international students as more human relative to animals, but less human relative to machines. The main difference between migrant groups selected for skill and economic contribution is the degree to which they experience mechanistic dehumanization. Economic migrants, temporary foreign workers, and international students are mechanistically (vs animalistically) dehumanized to a greater degree, and all appear to be mechanistically dehumanized similarly relative to each other.

5.4.2 Dehumanization and Country of Origin

Though we do not measure dehumanization by country of origin directly, we had speculated that patterns of dehumanization may differ depending on where people thought immigrants came from. Looking back at Table 4.2, we see that over half of participants mentioned either India or China as the source country of Canada's economic and family-class migrants. Despite these similarities, we see from the trait-based dehumanization scale that, after Canadians in general, people were most likely to attribute desirable (and deny undesirable) traits to economic migrants, while attributing undesirable (and denying desirable) traits to family class migrants. Given that patterns of attribution based on desirability and undesirability more closely match ingroup favouritism and outgroup derogation (Enock, Flavel, et al., 2021; Enock et al., 2021), this suggests that economic migrants are seen as closer to the ingroup than family-class migrants. Similarly, looking at blatant measures of dehumanization, economic migrants are more mechanistically dehumanized, while family class migrants are more animalistically dehumanized, relative to Canadians in general. This suggests that assumptions about potential economic ability and contribution based on an immigrant's admission category may override biases people have based on an immigrant's country of origin.

5.4.3 Effects of economic thinking and cultural enrichment beliefs

Past research has found that mechanistic dehumanization tends to be applied to disliked outgroups who are perceived to be high status or high competence. In addition, research on worker objectification has shown that employees are dehumanized both animalistically and mechanistically (Baldissarri et al., 2021). Given that economic thinking about immigration, as a construct, refers to thinking about immigration in terms of how immigrants contribute to the economy, we hypothesized that economic thinking, but not cultural enrichment beliefs, would be associated with mechanistic dehumanization. Contrary to our hypotheses, cultural enrichment beliefs moderated only people's attributions of desirable uniquely human traits, while economic thinking moderated the attribution of undesirable traits. However, neither cultural enrichment beliefs nor economic thinking moderated trait attribution of human nature traits across different target groups.

In contrast to subtle dehumanization, economic thinking moderated the degree to which migrant groups were animalistically and mechanistically dehumanized, while cultural enrichment beliefs only moderated animalistic dehumanization. While there were no significant differences between those who score high and low on economic thinking in terms of absolute animalistic dehumanization across different migrant groups, with the exception of refugee, there were differences in relative dehumanization between those who score high and low on this trait. Among those who score high on economic thinking, family class migrants, refugees, temporary foreign workers, and international students, but not economic migrants, were more likely to be animalistically dehumanized relative to Canadians in general. In terms of mechanistic dehumanization, however, patterns of dehumanization between those who score high versus low on economic thinking were fairly similar. That is, migrants ostensibly selected for skill, education, and economic contribution (i.e., economic migrants, temporary foreign workers, and international students) were more mechanistically dehumanized relative to those who were not ostensibly selected for these traits (i.e., family-class migrants, refugees) regardless of participants' endorsement of economic thinking. Instead, those who scored high on economic thinking mechanistically dehumanized all migrant groups more, relative to those who score low on economic thinking—an effect not found for people's perceptions of Canadians in general.

In terms of absolute animalistic dehumanization, those who score high on cultural enrichment beliefs were less likely to dehumanize *anyone*, compared to those who score low on this measure. This is in contrast to economic thinking, where there were no differences in absolute animalistic dehumanization. In terms of relative animalistic dehumanization, there were no differences across groups in general for those who score high on cultural enrichment beliefs. Those who score low in cultural enrichment beliefs, however, were more likely to animalistically dehumanize family class migrants, refugees, and temporary foreign workers relative to economic migrants, international students, and Canadians in general. Finally, while economic thinking was associated with greater mechanistic dehumanization of all migrant groups, but not Canadians in general, cultural enrichment beliefs were associated with lower mechanistic dehumanization of *all* groups.

Finally, while differences in blatant dehumanization appear small in terms of overall mean differences, the standardized effect size suggest that these are robust effects. Following

general conventions of effect sizes in social psychology, an effect size is deemed small if it is below 0.20, moderate between 0.20 and 0.50, and large if it is above 0.50. Our results show that the smallest effect size for significant effects tend to be moderate, depending on the pairwise contrast. Interestingly, we see that the upper-most effect size for mechanistic dehumanization tends to be smaller than that for animalistic dehumanization. Given the range in these effect sizes, it is important for future research to benchmark how large an effect in these ratings need to be in order to translate into tangible outcomes (e.g., voting behavior, etc.).

5.4.4 Conclusions

Overall, this chapter has provided evidence that migrant groups selected for skill and economic contribution are more (blatantly) mechanistically dehumanized compared to other migrant groups. Similarly, those who were ostensibly not selected based on economic criteria were more animalistically dehumanized. Though our measure of subtle dehumanization tapped into patterns of ingroup favouritism and outgroup derogation more broadly, it also provided evidence that economic migrants are seen as closest to "Canadians in general" as they were attributed more desirable traits and denied undesirable traits relative to all other groups. Finally, while cultural enrichment beliefs only moderated the effects of target group on animalistic dehumanization, economic thinking moderated the effect of target group on both animalistic and mechanistic dehumanization. This provides further evidence that economic thinking about immigration, while incorporating economic concerns, also maps onto traditional anti-immigrant prejudices.

Chapter 6

6 General Discussion

Immigration continues to play an important role in shaping the culture and economy of Canada. Coming out of the COVID-19 pandemic, the federal government aims to settle nearly 1.5 million permanent residents over the next three years, 60% of whom are economic migrants, to address labour market shortages and bolster the economy (IRCC, 2022). In line with the government's positive stance towards immigration, Canadians' attitudes also remain positive, driven largely by views of the importance of immigration to Canada's economy (Neuman, 2022). These positive views are not distributed equally across Canadians, however, with conservatives generally having more negative attitudes towards immigrants (Neuman, 2022), and 37% of Canadians believing in more racist "white replacement" conspiracy theories (Coletto, 2022). To counter anti-immigrant narratives, people sometimes turn to economic arguments to convince others of the benefits of immigration (Lees et al., 2021). Given the importance of a welcoming society on the integration of immigrants and the focus of economics both at the government level and in people's interpersonal discourses about immigration, this dissertation was focused on understanding how economic thinking was associated with people's attitudes towards immigrants. That is, we sought to investigate the extent to which economic thinking was distinct from people's cultural fears about immigration, and how economic thinking shapes people's preferences towards immigrants.

6.1 Summary of Research

6.1.1 Scale Construction and Validation (Chapter 2 and 3)

We developed a novel scale to investigate how people's beliefs and attitudes about immigration influence their perceptions of immigrants. We focused on two broad constructs: (1) the extent to which people think about immigration in terms of economic benefit, and (2) the extent to which people believe immigration enriches their country's culture. Though there is a strong body of research on the cultural, social, and economic factors that influence people's attitudes towards immigration (see Esses, 2021 for review), much of this research focuses on feelings of perceived threat and competition. Not surprisingly, many of the scales

developed to assess people's attitudes have also focused on threat and competition (e.g., European Social Survey, 2018; Esses et al., 2001). While there is a strong segment of individuals who are threatened by immigration and express feelings of being "replaced" (Coletto, 2022), much of the discourse surrounding immigration tends to be positive (Neuman, 2022). For example, both governments and individuals often speak positively about the economic and cultural contributions of immigrants (IRCC, 2022; Lees et al., 2021). Given this framing, we sought to develop a scale measuring both the economic and cultural components of people's attitudes towards immigrants, with a specific focus on ensuring that items were not phrased in terms of competition to better match how immigration is often discussed.

In Chapter 2, we outlined the development of the Economic Thinking and Cultural Enrichment Beliefs About Immigration scale. Across multiple studies, we narrowed down the items of the scale into two factors—six items assessing the extent to which people engage in economic thinking about immigration and 11 items assessing the extent to which people believe that immigration enriches the country's culture. In subsequent studies, we found that the scale had excellent psychometric properties. The scale exhibited good test-retest reliability across a two-week period, and had excellent model fit across multiple samples. Looking at measurement invariance, we found that the scale had scalar measurement invariance across race (non-White vs White participants), gender (men versus women), and immigration status (immigrants vs non-immigrants). Achieving scalar invariance across these groups means that this tool can be used in future research to examine differences in people's economic thinking and cultural enrichment beliefs across these groups.

6.1.1.1 Association with zero-sum measures

In Chapter 3, we investigated the construct validity of the Economic Thinking and Cultural Enrichment Beliefs About Immigration Scale. Specifically, we focused on both convergent validity—the extent to which our measure is associated with things we expect it to be associated with—and discriminant validity—the extent to which our measure is not associated with things that it should not be associated with (Hinkin, 1998; Hinkin et al., 1997). For example, the Economic Thinking and Cultural Enrichment Beliefs about

Immigration (ETCEI) Scale are factors of broader immigration attitudes. As such, we should expect it to be associated with existing measures of (anti-)immigration attitudes, like the zero-sum beliefs about immigration scale (Esses et al., 2003). Specifically, because cultural enrichment beliefs measure pro-diversity attitudes, we should expect it to be negatively associated with the zero-sum beliefs about culture subscale, which measures the extent to which people view immigrant cultures to be in competition with their own, while being less associated with the zero-sum beliefs about resources. Economic thinking, on the other hand, should not be associated with either measure.

Contrary to our hypothesis, we found that cultural enrichment beliefs and economic thinking were associated with both the cultural and resource components of the zero-sum beliefs about immigration scale. Specifically, those who endorse greater cultural enrichment beliefs were less likely to hold competitive attitudes towards immigrants, while those who endorse greater economic thinking were more likely to hold competitive attitudes towards immigrants, regardless of whether the topic was about culture or resource-based. These findings may suggest that cultural enrichment beliefs and economic thinking just tap into broader "liking" and "disliking" of immigration. However, we believe that these two measures represent distinct constructs—the correlations between these two measures were approximately $r = .40$. Though this would indicate a moderate relationship, this is far weaker than the correlation between other attitude and ideology measures (Hodson, 2021). A second possibility is that those who engage in economic thinking may be oriented towards zero-sum thinking more broadly, and those who endorse cultural enrichment beliefs may be less oriented towards zero-sum thinking. We do not think this is the case as we see that the measure was weakly correlated with Różycka-Tran et al.'s (2015) beliefs in zero-sum competition as a social axiom scale, which measures a general pre-disposition to view the world as inherently competitive.

People's attitudes towards immigration not only incorporate beliefs about labour competition, but also the extent to which people view that immigrants will be a "burden" to the country's social safety nets (Dustmann & Preston, 2006). It is likely that those who engage in economic thinking about immigration also consider the extent to which immigrants may "take away" from the country's social safety nets. As such, the correlation between economic thinking and zero-sum resources may be due to shared variance in

general concerns about whether immigrants will "take" more than they contribute, regardless of whether the questions were framed explicitly in terms of competition. Thus, while we phrased economic thinking items to be value neutral, initial evidence suggests that economic thinking may also be tapping into prejudicial attitudes more broadly. Similarly, past research in Europe has found that people who have a preference for living in an ethnically homogenous society were more likely to believe that immigration and diversity was bad for the economy (Tremewan, 2009). This suggests that for some people, their attitudes about cultural diversity is associated with their economic beliefs about immigration.

6.1.1.2 Ideology

We find further evidence that economic thinking taps into anti-immigration attitudes more broadly when we examine its association with ideological pre-cursors to prejudice. According to the dual process cognitive-motivational theory (Duckitt, 2001), our prejudices stem from early childhood experiences that pre-dispose us to certain personality traits and experiences that lead us to view the world as competitive and threatening. Specifically, those who score high on social dominance orientation tend to view the world as more competitive (Pratto et al., 1994), preferring society to be structured hierarchically regardless of one's own position in the hierarchy (Levin et al., 2016), and tend to express prejudice towards those who threaten this hierarchy (Duckitt, 2006). Those who score high on right-wing authoritarianism tend to have a deference to authority figures, an adherence to strong social convention, and exhibit aggression towards those who threaten traditional social conventions (Duckitt, 2006). Thus, those who score high on social dominance orientation tend to express prejudice towards those they view as competition or threaten the existing status quo (Duckitt, 2006), while those who score high on right-wing authoritarianism tend to express prejudice towards those who are dissimilar or whose behaviors and practices are seen as 'unconventional' (Duckitt, 2006; Rabinowitz, 2008).

Both social dominance orientation and right-wing authoritarianism have been associated with prejudice towards immigrants. Across samples in the United States and Switzerland, Thomsen et al. (2008) found that those who score high on social dominance orientation tend to express prejudice towards immigrants who assimilate *because* it is seen as boundary crossing and eroding existing hierarchies. On the other hand, those who score

high on right-wing authoritarianism tend to have more negative attitudes towards culturally dissimilar immigrants because they are seen as threats to group cohesion (Claassen & McLaren, 2020). Thus, both social dominance orientation and right-wing authoritarianism are associated with anti-diversity attitudes. Not surprisingly then, we also found that endorsement of cultural enrichment beliefs was negatively associated with both social dominance orientation and right-wing authoritarianism in Chapter 3.

If economic thinking were unassociated with anti-immigrant attitudes, then it should not be associated with either social dominance orientation or right-wing authoritarianism—however this was not the case. Economic thinking was positively associated with both social dominance orientation and right-wing authoritarianism. This is likely because the economic thinking items, despite not being phrased in terms of competition or referencing cultural attitudes, may tap into feelings of economic and cultural competition regardless.

6.1.1.3 Personality

We find further evidence that economic thinking taps into anti-immigrant prejudice more broadly by looking at people's personality profiles. As mentioned in the preceding section, our prejudices are not only associated with certain ideologies, but also certain personality traits that pre-dispose us to these world views. For example, in Ashton and Lee's (2009) HEXACO model of personality, people who score high in honesty-humility tend to have a propensity towards fairness. In addition, those who score high in emotionality are characterized by *sentimentality*—the propensity to form strong bonds with others. Since people who score high in social dominance orientation view the world as more competitive, these individuals tend to also score lower on honesty-humility and emotionality (Sibley et al., 2010). Similarly, those who score high in honesty-humility tend to be averse to change, while those who score high in openness to experience have a tendency towards unconventionality and accepting those who are different (Ashton & Lee, 2009; Lee et al., 2009). Consequently, those who score high on right-wing authoritarianism—that is, those who uphold traditionalist values and are averse to those they see as "socially deviant"—tend to score high on honesty-humility and low on openness to experience. Finally, traits like conscientiousness, extraversion, and agreeableness, as conceptualized in the HEXACO, should not be associated with prejudice-related attitudes and ideologies.

Consistent with our previous findings, cultural enrichment beliefs appear to track onto pro-immigrant (i.e., anti-prejudice) attitudes. Specifically, those who endorse cultural enrichment beliefs tend to also score high in terms of honesty-humility, emotionality, and openness to experience. Cultural enrichment beliefs measure the extent to which people are welcoming of other cultures, and the belief that these cultures improve one's own country. Not surprisingly then, those who endorse these beliefs are likely to be open to ideas different from their own (high openness to experience) and are willing to form bonds with culturally different others (high emotionality). Though both honesty-humility and right-wing authoritarianism are characterized with a fear of change, Canada itself is characterized by its endorsement of multicultural ideology. Those who endorse cultural enrichment beliefs likely also endorse Canada's multiculturalism, and thus would not view the acceptance of immigrants as "changing" the country.

Though we wrote economic thinking to minimize language about competition, looking at the correlates with personality suggests that the subscale also taps into some latent prejudices. That is, those who engage in economic thinking tend to score lower on honesty-humility, emotionality, and openness to experience. Since economic thinking measures the extent to which people view immigrants in terms of their economic benefit to one's own country, it should not be surprising then that economic thinking is associated with traits associated with low concern for others. The negative correlation with openness to experience, however, suggests that some of the variance in people's economic thinking may be due to a general disposition against those who are different—consistent with our findings that economic thinking is associated with right-wing authoritarianism.

Finally, examining the discriminant validity with other personality traits provides further evidence that cultural enrichment beliefs and economic thinking are associated with (anti-) prejudice towards immigrants. Past research found that there was no consistent association between extraversion, conscientiousness, and agreeableness, as conceptualized by the HEXACO, and prejudice-related ideologies (Sibley et al., 2010; Sibley & Duckitt, 2008; Sibley & Duckitt, 2010). Consistent with these findings, we found that neither cultural enrichment beliefs nor economic thinking were associated with conscientiousness nor agreeableness. Contrary to our hypotheses, however, we found that agreeableness was positively correlated with cultural enrichment beliefs, while negatively associated with

economic thinking. These correlations, however, were weak at $|r| = .11$. These mild associations may be due to our measure's associations with facets of HEXACO agreeableness. For example, *gentleness*, defined in the HEXACO as the extent to which people are critical in their evaluations of others, is a component of agreeableness in the HEXACO model. Given that economic thinking measures the extent to which people view immigrants in economic terms, those who score high on this measure may also tend to be critical in how they evaluate others more generally. Additionally, the *flexibility* subscale assesses the extent to which people are willing to compromise with others. Given that cultural enrichment beliefs capture the extent to which people believe other cultures to be valuable and want to incorporate other cultures into their own, those who endorse these beliefs may have a greater propensity to compromise more generally.

6.1.1.4 National Attachment and Attitudes Towards Other Nations

Thus far, we have provided evidence that economic thinking and cultural enrichment beliefs tap into people's (anti-)prejudice attitudes towards immigrants. Specifically, economic thinking was positively associated with beliefs about zero-sum competition with immigrants, prejudice-related ideologies such as social dominance orientation, right-wing authoritarianism, and personality traits associated with prejudice such as low openness to experience, honesty-humility, and emotionality. Cultural enrichment beliefs, on the other hand, were negatively associated with beliefs about zero-sum competition with immigrants, social dominance orientation and right-wing authoritarianism, along with being positively associated with honesty-humility, openness to experience, and emotionality. In short, the ideological and personality profiles of those who score high on economic thinking and those who score high on cultural enrichment beliefs tend to be the inverse of each other. Thus, it is not clear whether responses on these measures reflect distinct attitudes, or if they reflect opposites of a more general "liking" or "disliking" of immigration.

We begin to see convergences between economic thinking and cultural enrichment beliefs when we examine their correlates with people's national attachment and attitudes towards other nations. We focus on three types of national attachments and attitudes. Nationalism refers to competitive views towards other nations, where one views their own country as *superior* to others (Kosterman & Feshbach, 1989). Patriotism, on the other hand,

refers to positive attachment to one's country without feelings of superiority (Kosterman & Feshbach, 1989). Internationalism refers to positive regard towards other countries, and the extent to which people believe that they are responsible for helping other countries (Kosterman & Feshbach, 1989).

These three forms of national attachment have been associated with differences in anti-immigrant prejudice. Those who score high on nationalism, for example, tend to view immigrants as competition and harbour negative attitudes towards immigrants (Esses, 2021). Though there is less work on the relationship between internationalism and anti-immigrant attitudes, past research suggests that those who have a high concern for the welfare of other nations tend to also have more positive attitudes towards immigrants (Esses et al., 2004). Lastly, the relationship between patriotism and anti-immigrant attitudes is largely dependent on the form of patriotism one endorses. Blind patriotism, the unquestioning love of one's own country regardless of its policies, tend to be associated with anti-immigrant prejudice (Esses, 2021). On the other hand, constructive patriotism, the love for one's country and willingness to express criticism to improve one's nation, is associated with more positive attitudes towards immigrants (Ariely, 2011; Willis-Esqueda et al., 2016).

Looking at the correlations with economic thinking and cultural enrichment beliefs, we find that economic thinking is characterized by both positive ingroup and negative outgroup attitudes, while cultural enrichment beliefs are characterized by greater concerns for the outgroup. That is, economic thinking is positively, and moderately, correlated with both nationalism and patriotism, while strongly and negatively correlated with internationalism. Cultural enrichment beliefs, on the other hand, are strongly and positively correlated with internationalism, while being uncorrelated with patriotism and only weakly and negatively correlated with nationalism. Thus, while economic thinking is characterized by positive attitudes and feelings of superiority towards one's own country and a lower desire to help other nations, cultural enrichment beliefs are associated with beliefs that no country is superior, and a greater desire to aid other nations with their problems. Interestingly, we did not find a positive association between patriotism and cultural enrichment beliefs. We had hypothesized we would find this association because Canada typically conceptualizes itself as pro-immigration and multicultural. At the same time, however, the Canadian government also focuses on economic migration, which may be

counter to the beliefs of individuals who score high on cultural enrichment beliefs. Thus, the pro-multiculturalism but anti-economic migration attitudes of those who endorse cultural enrichment beliefs may cancel out any associations with patriotism.

6.1.1.5 Predicting Ethnic and Immigrant Preferences

In addition to convergent and discriminant validity, we also examined criterion validity—that is, do our measures predict what they are supposed to predict (Hinkin, 1998; Hinkin et al., 1997). In the context of economic thinking, we would expect it to be associated with preferences towards immigrants selected for economic reasons, over those who were not selected for economic reasons. In addition, since race, ethnicity, and immigration status tend to be associated (e.g., Devos & Banaji, 2005; Semenya, 2001), economic thinking should also be associated with preferences towards racial or ethnic groups stereotyped to be economically successful. Since cultural enrichment beliefs focus on the extent to which people believe other cultures enrich one's own country, it should not be associated with preferences towards economic migrants, but instead be associated with preferences towards culturally dissimilar individuals. Thus, while the ideological and personality correlates of economic thinking and cultural enrichment beliefs suggest they tap into opposite ends of immigrant "liking" and "disliking", they should be associated with different economic and ethnic preferences.

Consistent with our hypothesis, economic thinking was associated with preferences for economic migrants. However, instead of manifesting as a desire to *increase* economic migration, we find that it instead manifests in a desire to *decrease* immigration overall. Additionally, while those who score high on economic thinking would prefer to reduce the migration of all migrant groups relative to economic migrants, there are generally no differences in preference between family class migrants, refugees, temporary foreign workers, and international students. The one exception is that those who score high on economic thinking would prefer to reduce the immigration of refugees more than the immigration of family class migrants. The finding that those who score high on economic thinking have a preference against refugees compared to family class migrants is consistent with findings that people tend to view refugees as a social burden (Savaş et al., 2021; Wyszynski et al., 2020), and that views of social dependency are integrated into people's

economic assessments about immigration (Tremewan, 2009). Those who score low on economic thinking, on the other hand, tend to show no preference in migration for economic migrants, family class migrants, and international students. Instead, those who score low on economic thinking exhibit more restrictive migration attitudes towards temporary foreign workers and refugees.

We found mixed support for our hypothesis that cultural enrichment beliefs should not be associated with preferences for economic migration. Specifically, while we found that cultural enrichment beliefs were associated with less restrictive attitudes towards immigration overall, regardless of type of immigrant, we also found differences in relative preferences to expand or restrict migration between groups. While there were no differences in migration preferences between economic migrants, family class migrants, and refugees, those who score high in cultural enrichment beliefs tend to prefer increasing migration from these migrant groups over increasing migration of temporary foreign workers. While economic migrants and temporary foreign workers are recruited for their ability to contribute to the economy, the latter hold more precarious positions that lend themselves to exploitation (Cundal & Seaman, 2012; Strauss & McGrath, 2017). Given that cultural enrichment beliefs were associated with ideologies and personality traits related to fairness and equity, it makes sense that individuals who endorse these beliefs would have a preference against migration streams that are prone to exploitation. Those who score low on cultural enrichment beliefs, however, generally do not show preferences towards any type of migrant.

When we examined people's racial preferences, we also found evidence for our hypothesis that economic thinking would be associated with preferences towards racial or ethnic groups stereotyped to be economically successful. Specifically, those who scored higher on economic thinking had more positive attitudes towards East Asian individuals overall, relative to all other non-White racial or ethnic groups, and negative attitudes towards individuals from the Middle East. This is consistent with research that suggests people tend to view East Asian immigrants as model minorities—immigrants who are quiet, hard-working, and economically successful (Bu & Borgida, 2021; Poon et al., 2016). Additionally, it is consistent with recent research that has found that, among Canadians, economic threat predicted greater prejudice towards Middle Eastern immigrants, likely due to conflating

"Middle Eastern" with "refugee" (Esses, Sutter, et al., 2021). There were no consistent preferences found among those who scored low on economic thinking.

We also found evidence consistent with our hypothesis that cultural enrichment beliefs would be associated with a preference for diversity. Specifically, those who scored high on cultural enrichment beliefs generally had more positive attitudes towards all non-White racial / ethnic groups relative to those who scored low on cultural enrichment beliefs. Interestingly, those who scored high in cultural enrichment beliefs tended to have similar attitudes towards White and Middle Eastern individuals, and also preferred all other racial / ethnic groups over people from the Middle East. These findings are particularly interesting because they suggest that those who have a preference for cultural diversity are viewing individuals from the Middle East as similar to White individuals.

While the Canadian census uses a broader range of categories when asking about race or ethnicity, the United States typically considers individuals from the Middle East as "White." These census categories, however, do not match people's categorizations of others (Maghbouleh, 2017). Though skin colour tends to be used as a primary indicator of race in the United States, sociocultural cues like one's name and religion cue Americans to racialize Middle Eastern individuals as non-White (Maghbouleh et al., 2022; Schachter et al., 2021).

Within our study, our pre-dominantly White sample may have had little contact with Middle Eastern individuals. This lack of contact may lead participants' mental representations of Middle Eastern individuals to lack socio-cultural cues that would result in racializing Middle Eastern individuals as non-White. Thus, those who scored high on cultural enrichment beliefs may have viewed Middle Eastern individuals as White because of this lack of knowledge. Those who scored low on cultural enrichment beliefs on the other hand may rely on (predominantly negative) media narratives about Middle Eastern individuals. Such narratives have conflated Middle Eastern individuals with South Asian individuals and painted them as criminals and terrorists post-9/11 (Cainkar & Maria, 2005). This is consistent with our finding that participants who score low on cultural enrichment beliefs viewed Middle Eastern and South Asian individuals similarly.

6.1.1.6 Conclusions

The goal of Chapters 2 and 3 was to develop a scale assessing economic thinking and cultural enrichment beliefs, independent of competitive framing. In Chapter 2, we highlighted the development of the scale, and found that it had excellent psychometric properties with regards to model fit, test-retest reliability, and measurement invariance. In Chapter 3, we validated the constructs by looking at convergent, discriminant, and criterion validity. While we found that both economic thinking and cultural enrichment beliefs appeared to tap into general prejudices towards immigrants—the former being associated with negative attitudes and the latter with positive attitudes—the two constructs were also distinguishable from each other. Economic thinking, for example, was associated with positive regard and views of superiority towards one's own country, and negative attitudes towards cooperating with other nations. Cultural enrichment beliefs, on the other hand, were associated with a greater orientation towards the needs of other nations, unassociated with positive attachment to one's own country, and is associated with less nationalist views overall. Additionally, economic thinking predicted preferences for *decreasing* immigration for non-economic migrants, more positive attitudes towards racial groups stereotyped as economically successful, and negative attitudes towards those stereotyped as economic burdens. Cultural enrichment beliefs were associated with less restrictive immigration attitudes overall, and more positive attitudes towards non-White racial / ethnic groups.

6.1.2 Economic Thinking and Revealed Preferences (Chapter 4)

In Chapter 4, we investigated whether people's preferences towards different racial and migrant groups as a function of their economic thinking and cultural enrichment beliefs were taste-based or stemmed from statistical discrimination. Taste-based discrimination refers to disliking others because of their group membership, typically based on social identity processes and emotion (Esses, 2021). In contrast, statistical discrimination refers to disliking others because of inferred characteristics about people's economic ability, based on socio-demographic information (Arrow, 1973; Esses, 2021). As such, information about people's educational credentials or work history should override biases stemming from statistical discrimination, while it should not affect biases stemming from taste-based discrimination. In the context of our scale, cultural enrichment beliefs should be more

(negatively) associated with taste-based discrimination—therefore people's attitudes towards others should remain unchanged when presented information about economic ability. In contrast, economic thinking should be more associated with statistical discrimination, and should be swayed by individuating information about people's economic ability.

In the previous chapter, we found that those who endorsed economic thinking showed preferences towards East Asian individuals and against Middle Eastern individuals relative to all other ethnic groups. Though the immediate assumption is that economic thinking predicts taste-based preferences, these patterns of results are also consistent with people's economic stereotypes about immigrants from these two groups. East Asian individuals, for example, are often stereotyped as model minorities—that is, as a group, they are viewed hardworking and economically successful (Poon et al., 2016). As such, in the absence of any individuating information, individuals who engage in economic thinking may engage in statistical discrimination and infer that East Asian individuals are hard-working and economically successful due to this pervasive stereotype.

With regards to people's attitudes towards Middle Eastern immigrants as a function of economic thinking, these attitudes may be driven by people's assumptions of Middle Eastern people's migration histories in Canada. In Chapter 5 of this dissertation, we see that after Ukraine, people assumed that most refugees in Canada come from Middle Eastern countries and Afghanistan. Past research has found that people's economic attitudes also consist of concerns about the tax burden of immigrants—that immigrants will use more social and government resources than they contribute in taxes (Tremewan, 2009). Compared to other immigrants, refugees and other immigrants in precarious social positions tend to elicit perceptions that they are vulnerable and dependent on social services (Savaş et al., 2021; Wyszynski et al., 2020). Economic threat was also found to be associated with more negative attitudes towards Middle Eastern individuals (Esses, Sutter, et al., 2021). In this context, it is possible that absent of any individuating information, those who engage in economic thinking made inferences about the migration history of Middle Eastern individuals as a group, making their attitudes more negative.

We sought to disentangle these perceptions in Chapter 4 by asking participants to rate more complex profiles of immigrants in a conjoint survey design. Conjoint surveys allow

researchers to present participants with a series of complex stimuli, asking them to rate each stimuli (or pairs of stimuli) across multiple trials. In the context of our experiment, for example, we had participants select which immigrant profile they would prefer to become a permanent resident, varying each profile's country of origin, educational credentials, language proficiency, and employment industry. Because many variables are being rated *conjointly*, participant responses are less prone to social desirability bias because participants believe that their responses are less likely to be associated to a single attribute (Horiuchi et al., 2022). Additionally, these types of experiments have been used with great success to estimate people's attitudes towards immigrants (Flores & Schacter, 2018; Hainmuller et al., 2015).

Drawing from both existing literature and immigration policy, we selected the features in our conjoint experiment based on characteristics we believed would be associated with economic thinking. Though skilled immigrants can simultaneously elicit threat due to labour market competition (Facchini & Mayda, 2012; Zárate et al., 2004) and favour due to their potential for economic contribution (Facchini & Mayda, 2012; Hainmuller & Hiscox, 2007), highly educated immigrants are consistently favoured by residents of the receiving country, regardless of their own socio-economic characteristics (Esses, 2021; Hainmuller & Hiscox, 2007; Hainmuller & Hopkins, 2015). For example, in a conjoint experiment examining people's preferences towards immigrants, Hainmuller and Hopkins (2015) found that educated immigrants with high status employment were viewed most favourably by Americans. These preferences, surprisingly, had very little variation regardless of the participant's own socio-demographic characteristics, including level of education and labour market position. Thus, while educated individuals *can* find skilled immigrants threatening due to labour market competition (Facchini & Mayda, 2012; Zárate et al., 2004), these feelings of threat are overridden when evaluating immigrants across multiple attributes.

In addition to educational attainment, where immigrants received their education also biases perceptions of their ability. While people tend to favour educated immigrants in high status positions (Hainmueller & Hopkins, 2015), there is still a strong bias against those with foreign credentials (Louis et al., 2010; Monteiro, 2022). Looking at the 2016 Canadian census, Monteiro (2022) found that there was considerable variation in earnings among immigrants of similar educational backgrounds, with immigrant population size explaining

this variance. That is, immigrants from countries that are more represented in Canada's demographics earned more money. Monteiro (2022) suggested that this, in part, is due to credential recognition issues—as immigrant groups become more represented in the labour market, employers become more familiar with the foreign credentials of these immigrant groups. Corroborating these findings, Louis et al. (2010) found that Australian patients rated doctors with otherwise identical credentials less favourably when they received their education in Pakistan versus the United Kingdom, likely because of assumptions regarding educational quality.

Given these findings, we hypothesized that economic thinking would moderate preferences towards these educational and employment characteristics. Specifically, we wanted to examine whether providing participants information about various characteristics would override preferences due to country of origin or type of immigrant (i.e., economic, family class, or temporary foreign worker). In addition to educational attainment and country of education, we also varied language proficiency, as this is one of the criteria in Canada's Comprehensive Ranking System (2022). Though language fluency preferences may map onto cultural prejudices, past research has found that official language fluency is an important predictor in the economic integration of Canadian immigrants (Crossman & Hou, 2022). Because people are also biased towards immigrants in high-status jobs (Hainmueller & Hopkins, 2015), we also varied the type of industry each immigrant was planning to work in. Specifically, we chose seven industries (food service, finance, healthcare, hospitality, construction, technology, and education) based on a comprehensive ranking of occupational prestige in Canada (Boyd, 2008).

Overall, we found that people's attitudes had very little influence in terms of preferences. In general, people preferred immigrants who were educated, and received their education in Canada, spoke fluent English and/or French, and worked in healthcare, while disliking those who worked in food service. In particular, people's preferences against temporary foreign workers and foreign-educated immigrants, and towards immigrants educated in Canada were consistent regardless of one's cultural enrichment beliefs and mirrored the preferences of those who score high on economic thinking. In our findings, those who score high and low on cultural enrichment beliefs—which can be seen as a measure of the extent to which people value cultural diversity—had similar preferences

when it comes to immigrants' economic abilities. Thus, while Chapter 3 provided some evidence that economic thinking is associated with ideologies and personality profiles associated with prejudice, people in Canada, regardless of their pro-diversity orientation, value the same economic characteristics among immigrants.

Interestingly, we also find that economic thinking continues to moderate preferences for different immigration groups, even when presented with information about the immigrant's educational background and employment intent. Those who scored low on economic thinking showed preferences for family class migrants, and no preference for or against economic migrants and temporary foreign workers. Those who scored high on economic thinking, on the other hand, showed no preference for or against family class migrants, but showed preferences for economic migrants and against temporary foreign workers. This suggests that there are other assumptions made by these individuals that are not captured by the characteristics presented in the profiles. One of these characteristics may be the presumed economic potential of economic migrants versus temporary foreign workers. Given that we did not specify the specific jobs, but only the industry of interest, it is possible that people assumed economic migrants would occupy more higher status positions in those industries. Since temporary foreign workers have historically been used to fill labour shortages in jobs that are associated with lower occupational prestige (Boyd, 2008; Lu, 2020), those who score high on economic thinking may assume they do not sufficiently contribute to Canada's economy.

These differences also have potential implications in terms of countering anti-immigrant prejudice. As we noted in the first chapter, part of the reason we undertook this project was to understand whether economic narratives would be effective at countering anti-immigrant prejudice. For example, when generating pro-immigration arguments, people refer to how immigrants are hard-working and contribute to the economy (Lees et al., 2021; Resnick, 2017). We see in this chapter, however, that while economic thinking was associated with more positive attitudes towards economic migrants, it was also associated with more negative attitudes towards temporary foreign workers. This effect persists even when information about educational attainment and employment industry is present. This is particularly problematic as temporary foreign workers tend to occupy more precarious positions in society (Cundal & Seaman, 2012; Strauss & McGrath, 2017), and thinking about

immigration in economic terms may lead to less willingness to offer help (Wyszynski et al., 2020). Though more research needs to be conducted on how longitudinal changes in economic thinking shift people's preferences, these findings suggest caution when employing economic narratives. Though they may lead to more positive attitudes towards some migrant groups, they may also lead to more negative attitudes towards others.

6.1.3 Economic Thinking and Dehumanization (Chapter 5)

Lastly, in Chapter 5, we focused on the dehumanization of immigrants—specifically, how economic thinking and being categorized as "economic migrants" more broadly might lead to different forms of dehumanization. Past research on dehumanization and immigration has focused on immigrants in more precarious situations like refugees and asylum seekers—usually taking on the form of animalistic dehumanization (Esses et al., 2021). In Canada and the United States, for example, undocumented immigrants and refugees are often described in metaphors that liken them to vermin spreading disease (Esses et al., 2013; Marshall & Shapiro, 2018). However, not all immigrants are viewed the same way. Stereotypes about refugees, undocumented migrants, and asylum seekers often elicit feelings of paternalism or contempt, while migrants in less precarious positions are often viewed as more competent, hard-working national assets, while also eliciting feelings of envy (Cuddy et al., 2008; Lee & Fiske, 2006; Savaş et al., 2021; Wyszynski et al., 2020).

The stereotypes associated with different immigrants play an important role in how others dehumanize them. Neuroimaging studies, for example, have found that groups who are stereotyped as both low in warmth and competence—such as undocumented migrants, refugees, and asylum seekers—elicited lower activation in brain regions associated with processing social information, and greater activation in regions associated with feelings of disgust (Harris & Fiske, 2006). Though this study did distinguish between animalistic and mechanistic dehumanization, later work has highlighted the conceptual similarity between the warmth / competence dimensions of the stereotype content model and trait-based attributions associated with animalistic and mechanistic dehumanization (Li et al., 2014). Similar to the *competence* dimension in the stereotype content model, uniquely human traits and agency traits in the dual model and mind perception accounts of dehumanization map stereotypes based on perceived cognitive ability. The *warmth* dimension in the stereotype

content model, on the other hand, is similar to human nature and experience traits in the dual model and mind perception accounts, measuring emotional experiences. Given that the in-group is typically perceived to be both high in warmth and competence and those who are stereotyped to be low in both these traits are animalistically dehumanized, those who are seen as low in warmth but high in competence are likely the recipients of mechanistic dehumanization.

Drawing on literature on Asian American discrimination and worker objectification, we find evidence that those who are stereotyped as low warmth but high competence experience mechanistic dehumanization. According to the stereotype content model, Asian Americans are typically viewed to be high in competence but low in warmth, while Black Americans are viewed as both low warmth and low competence (Fiske et al., 2002). Consequently, there is an asymmetry in the stereotypes both these groups experience. While Black Americans experience greater levels of animalistic, relative to mechanistic dehumanization, Asian Americans experience greater levels of mechanistic, relative to animalistic dehumanization (Bai & Zhao, 2021). Additionally, research on worker objectification has found that describing workers with metaphors likening them to machines lead to people perceiving them as more competent (Fowler & Utych, 2021)—further providing evidence that mechanistic dehumanization is a combination of being perceived low in warmth (i.e., human experience), and high in competence (i.e., agency).

Given these differences in stereotypes, we sought to investigate how different forms of dehumanization were applied to different groups of immigrants. We know from past research that refugees tend to be described in terms of animalistic metaphors (Esses et al., 2021), but there has been less work on how other types of immigrants may experience dehumanization. Given that economic immigrants elicit the same reactions of envy as people who are generally stereotyped as low warmth and high competence (Cuddy et al., 2008; Wyszynski et al., 2020), these types of immigrants may be more likely to be dehumanized mechanistically. Additionally, other immigrants are also selected based on competence or their ability to contribute to the economy, such as international students and temporary foreign workers, while others are selected based on grounds of family reunification. As such, we investigated the extent to which different types of migrants were animalistically or

mechanistically dehumanized, and how economic thinking and pro-diversity attitudes like cultural enrichment beliefs, moderated these perceptions.

We found that there were asymmetries in blatant animalistic and mechanistic dehumanization across different immigration groups. Using established measures of blatant dehumanization, likening people to animals (Kteily et al., 2015) or robots (Bai & Zhao, 2021), we asked participants the extent to which various groups (i.e., Canadians in general, economic migrants, family class migrants, refugees, international students, and temporary foreign workers) were more human-like versus animal-like or machine-like. Consistent with our hypotheses, we found that immigrants selected for economic reasons or otherwise stereotyped as highly competent, such as economic migrants, temporary foreign workers, and international students were more mechanistically (relative to animalistically) dehumanized. Contrary to our hypotheses, however, Canadians in general were also more mechanistically (versus animalistically) dehumanized, while there were no significant differences in blatant animalistic versus mechanistic dehumanization of refugees. Looking at comparisons between groups, we see that economic migrants, temporary foreign workers, and international students were more mechanistically dehumanized relative to Canadians in general, family class migrants, and refugees. With regards to animalistic dehumanization, people perceived economic migrants similarly relative to Canadians in general, and all other migrant groups were more animalistically dehumanized relative to these two groups.

Economic thinking moderated these perceptions such that people who scored high in economic thinking were more likely to mechanistically dehumanize all immigrant groups, but not Canadians in general, while cultural enrichment beliefs were associated with less mechanistic dehumanization overall. While there were no differences in overall animalistic dehumanization as a function of economic thinking, those who score high on economic thinking were more likely to animalistically dehumanize all migrant groups relative to Canadians in general and economic migrants—a pattern not found among those who scored low on economic thinking. Cultural enrichment beliefs were associated with lower animalistic dehumanization overall, though those who scored high on this measure were still more likely to animalistically dehumanize refugees relative to all other groups. Those who score low on cultural enrichment beliefs were more likely to animalistically dehumanize

family class migrants, refugees, and temporary foreign workers relative to Canadians in general and economic migrants.

We also looked at subtle trait-based dehumanization. Drawing on Haslam and Loughnan's (2014) work on the dual model of dehumanization, we asked participants the extent to which various uniquely human or human nature traits were representative of various groups. Animalistic dehumanization is thought to occur when people are denied uniquely human traits, while mechanistic dehumanization occurs when people are denied human nature traits (Haslam & Loughnan, 2014). Contrary to our hypotheses, we did not find patterns of trait attribution consistent with accounts of dehumanization. Rather, our results mirrored that of Enock et al. (2021), finding that people applied desirable and denied undesirable traits to ingroups, while applying undesirable and denying desirable traits to outgroups.

Despite the measurement issues with using subtle trait-based measures of dehumanization, there are still interesting insights for intergroup relationship research more broadly. Specifically, we found that economic migrants, after Canadians in general, were viewed most positively in terms of people's trait attributions relative to all other migrant groups. One way to interpret this is that economic migrants may be seen as more "closely" associated with "Canadians in general" as an ingroup, relative to all other migrant groups. Past research has found that narratives about immigrant success tends to homogenize perceptions of immigrants to be more similar to one's ingroup (Martinez et al., 2021). Given that economic migrants tend to be stereotyped as "hard-working" (Savaş et al., 2021) and is likely what people envision when talking about immigrant success narratives (e.g., Resnick, 2017), it is likely that economic migrants are more closely associated with the national ingroup relative to all other migrant groups.

6.1.4 Conclusions

We sought to develop a measure assessing economic thinking about immigration. Because we were interested in contrasting these attitudes with attitudes towards diversity, we developed a 2-factor measure assessing economic thinking and cultural enrichment beliefs. Though the scale appeared to measure anti-immigration and pro-immigration attitudes more broadly, we found that economic thinking and cultural enrichment beliefs can be

distinguished in terms of immigration and ethnic preferences. That is, economic thinking was associated with a greater desire to restrict immigration for all migrant groups, except for economic migrants *and* more positive attitudes towards ethnic groups that have historically been stereotyped as economically successful. Cultural enrichment beliefs, in contrast, are characterized by a pro-diversity orientation, desiring less restrictive migration overall and positive attitudes towards culturally dissimilar ethnic groups. Though we found little evidence that these attitudes moderated preferences for *specific* characteristics of immigrants, we did corroborate past findings that the preference for educated and skilled immigrants was consistent across populations. Lastly, we found that immigrant groups selected for economic reasons were more likely to be mechanistically dehumanized, and that economic thinking was associated with greater mechanistic dehumanization of immigrants, specifically. These findings suggest that it is important to attend to how people perceive immigrants' contribution in shaping their attitudes.

6.2 Limitations

In the following section, we will discuss the limitations of the current research, both methodologically and in terms of what can be inferred from our findings. We also discuss potential future directions to address these limitations, and to highlight fruitful endeavors for this line of work. We divide this section into specific limitations and future directions for each set of studies, as well as a more general discussion of the work as a whole

6.2.1 Scale Construction and Validation (Chapter 2 & 3)

In Chapter 2 and 3, we developed a scale to assess economic thinking and cultural enrichment beliefs; however these scales were developed specifically within a Canadian context. Aside from one study in Chapter 2, all studies in this dissertation recruited online samples of participants currently residing in Canada, the majority of whom also identified Canada as their country of birth. Though we tested for measurement invariance to investigate whether the scale is interpreted similarly across different demographic samples, we focused only on participants' race, gender, and immigration status. While immigration status could potentially inform us about cross-national differences in immigration attitudes, we do not have a sufficiently large sample of participants to make inferences about specific

countries. This may limit our ability to generalize our findings to other national contexts, given the perception that Canada is "uniquely" positive towards immigrants.

Compared to residents of other western democracies, Canadians tend to have more positive attitudes towards immigrants—a difference that has often been attributed to the country's unique "character" and "identity" (Banting & Sorokova, 2021; Esses, McRae, et al., 2021; Neuman, 2022; Triadafilopoulos & Taylor, 2020). Some of these factors include government-sanctioned multicultural ideology (Banting & Sorokova, 2021), which has been found to positively shift people's attitudes towards immigrants (Gaucher et al., 2018). Another factor is the focus on economic migration. In the 1990s, the belief that immigration was good for the economy rose along with the government's focus on economic migration (Banting & Sorokova, 2021), with Canadians' attitudes towards immigrants shifting with economic conditions since that time (Wilkes & Corrigal-Brown, 2010). That is, Canadians' attitudes towards immigrants were more positive, on average, when the economy was good, and negative when the economy was bad. A third factor is that Canada is geographically isolated, bordering only the United States, leading to greater control over immigration (Banting & Sorokova, 2021). From a psychological perspective, perceived control, both with regards to immigration and more broadly, tends to be associated with more positive attitudes towards immigrants (Esses & Hamilton, 2021; Schwartz et al., 2020). Finally, because of the large immigrant population, immigrants make up a sizable portion of the electoral base, which means that immigrants can elicit cross-party support (Triadafilopoulos & Taylor, 2020).

Though these factors may explain why Canadians' attitudes towards immigrants are largely positive, these factors are not exclusive to Canada (Banting & Sorokova, 2021). While the Canadian government promotes multiculturalism, Canadians are still susceptible to feelings of cultural threat. For example, the belief that "[too] many immigrants are not adopting Canadian values" reliably predicts anti-immigrant prejudice along with beliefs that "[immigration] has a positive impact on the economy" (Banting & Sorokova, 2021). More recently, a large minority of Canadians have also subscribed to conspiracy beliefs that the government is actively attempting to replace the White population (Coletto, 2022). Similarly, while cultural threat appears to be a stronger predictor of anti-immigrant prejudice compared to macro-economic conditions in other countries (Schneider, 2007), like Canadians, they

reliably prefer educated and skilled immigrants over less skilled immigrants regardless of their own educational level or societal position (Esses, 2021; Hainmueller & Hopkins, 2015).

What remains unique about Canadians, however, is that their feelings of cultural threat appear to be tempered by the general belief that immigrants are good for the economy (Banting & Sorokova, 2021). We see this reflected in Chapter 4, where preferences towards immigration were largely unaffected by people's cultural enrichment beliefs—which can be used as a proxy for pro-diversity attitudes. Regardless of whether people were more or less diversity oriented did not affect their preference towards educated immigrants who would contribute to the economy. This appears to be in contrast with research by Tremewan (2009), which found that Europeans' beliefs in whether immigration is "good" or "bad" for the economy was associated with their preference for living in an ethnically homogenous society.

Given these potential similarities and differences, it is important to validate this scale across other cultures. While the same factors influence Canadians' attitudes towards immigrants as in other countries (Banting & Sorokova, 2021), the strong belief in immigrants' positive contributions to the economy may affect the factor structure and relationship between economic thinking and cultural enrichment beliefs. In Chapter 2 and 3, we found that economic thinking and cultural enrichment beliefs were consistently, but moderately correlated with each other. In Chapter 4, we found that preferences for the economic characteristics of immigrants were largely consistent regardless of one's cultural enrichment beliefs, and that these preferences mirrored those who score high in economic thinking. This suggests that, regardless of one's own attitude towards diversity, Canadians tend to value immigrants who are seen as "good for the economy". While other research have found similar findings in conjoint surveys across socio-demographic characteristics (e.g., Hainmueller & Hopkins, 2015), very few measured attitudes directly. Tremewan (2009) has argued that economic attitudes among Europeans are due, in part, to motivated reasoning—that they dislike immigrants and therefore view them as bad for the economy. As such, it is possible that the economic thinking subscale may be more negatively correlated with cultural enrichment beliefs, and tap into motivated reasoning more than actual economic concerns.

6.2.2 Economic Thinking and Revealed Preferences (Chapter 4)

In economics, prejudice and discrimination can be divided into two forms—*taste-based*, where people dislike others based on group membership, or *statistical*, where people dislike others because of inferred economic ability based on socio-demographic characteristics (Esses, 2021). We found in Chapter 3 that economic thinking was associated with more positive attitudes towards migrant and ethnic groups stereotyped as "economically successful". We sought to expand these findings in Chapter 4 by investigating whether these preferences reflected *statistical* prejudices—that is, those who score high on economic thinking had positive attitudes towards East Asians and economic migrants *because* of inferences they made about their ability to contribute to the economy. To do this, we conducted a conjoint survey experiment, where we asked participants to select across a number of trials which immigrants they preferred to be given permanent residency. Though conjoint surveys have been used extensively in the social sciences to investigate attitudes towards immigrants (e.g., Flores & Schacter, 2018; Hainmuller et al., 2015; Maghbouleh et al., 2022), specific features of our survey limit the conclusions we can draw.

The first limitation of our conjoint survey is the selection of the characteristics we chose to vary for our experiment. In addition to country of origin and type of immigrant, we focused primarily on characteristics like education, language proficiency, and intended job industry that had previously been associated with economic integration and perceived socio-economic status (Comprehensive Ranking System, 2022; Esses, 2021; Hainmuller & Hiscox, 2007; Hainmuller & Hopkins, 2015; Louis et al., 2010; Monteiro, 2022). We found that economic thinking and cultural enrichment beliefs had very little influence in people's preferences, and instead found that people preferred highly educated immigrants who intended to work in "useful" jobs like healthcare, consistent with past findings (Hainmueller & Hiscox, 2007). One notable difference, however, was that participants who scored low on economic thinking showed a preference for family class migrants and no preferences for or against economic migrants and temporary foreign workers. Those who scored high on economic thinking showed no preference for or against family class migrants, while showing preferences for economic migrants and against temporary foreign workers. Given that these preferences persist despite the presence of individuating information about economic ability

suggests that people may be inferring other information that affects their preferences that we did not measure.

Some of these unmeasured characteristics that influence people's preferences may include assumptions about the specific jobs that temporary foreign workers versus economic immigrants more broadly intend to occupy, or even their long-term economic contribution. To simplify both experimental design and analyses, we specified only the occupational industry immigrants intended to work in without specifying their specific role or job histories. For example, those who score high in economic thinking may erroneously assume that temporary foreign workers fill "low skilled" positions regardless of their educational background. Subsequently, these assumptions about what jobs certain types of immigrants take may also feed into people's perceptions of self-sufficiency—that is, they might assume that people taking "low skill" jobs would be more likely to need to use social support services, while ostensibly "contributing less" to the tax base. Given that people tend to dislike immigrants they perceive to be "taking" more than they contribute (Dustmann & Preston, 2006), this may account for the differences in preference between economic migrants and temporary foreign workers. Future studies then should also vary the specific types of jobs that immigrants take within each industry to disentangle these effects further.

Another important limitation to this study is its external validity—specifically whether these preferences translate into real-world behavior. Past research has found that conjoint surveys can accurately map into people's preferences for different types of immigrants. In Switzerland, for example, municipalities hold referendums to vote on the naturalization of immigrants. Using these referendum results as a baseline for comparison, Hainmueller et al. (2015) conducted a series of conjoint experiments varying information about immigrants consistent with the information available in these municipal referendums and found that paired conjoint experiments closely approximated real-world outcomes. In Canada, however, people do not vote on which immigrants they want to receive permanent residency.

While this limitation does not mean we cannot, for example, infer that Canadians in general prefer skilled immigrants regardless of their attitudes, it does limit what we can infer in terms of policy preferences. For example, while people *prefer* educated immigrants, and

those who received their education in Canada, it does not inform us on whether these individuals would necessarily support programs that aid in re-credentialing immigrants. Given that economic thinking as a construct focuses on how immigrants benefit the receiving country's economy, and that people may view immigrants using social services as "costing" more than their worth in terms of economic contribution (Dustmann & Preston, 2006), those who engage in economic thinking may not support re-credentialing. In contrast, cultural enrichment beliefs, which has been found to be associated with attitudes oriented towards helping others, may predict greater support for these programs. Thus, while those who score high on economic thinking and those who score high on cultural enrichment beliefs both prefer educated immigrants who receive their training in Canada, their overall preferences for *helping* these immigrants to receive these trainings may differ.

6.2.3 Economic Thinking and Dehumanization (Chapter 5)

In Chapter 5, we investigated the different forms of dehumanization immigrants experience, with a focus on how economic labels and economic thinking. Consistent with research on worker objectification and objectification of "high status" outgroups (Loughnan & Haslam, 2007), we found that economic migrants, temporary foreign workers, and international students were more blatantly mechanistically dehumanized and less animalistically dehumanized compared to family class migrants, refugees, and Canadians in general. Additionally, we found that cultural enrichment beliefs were associated with less mechanistic dehumanization generally, while economic thinking was associated with the mechanistic dehumanization of all immigrant groups. These findings, however, were only found using blatant, but not subtle, measures of dehumanization.

Measures of dehumanization can be broadly split into two categories. Blatant measures of dehumanization refers to measures that explicitly liken people to animals or machines. For example, Kteily et al.'s (2015) ascent of man measure and Bai and Zhao's (2021) analogous measure for mechanistic dehumanization asks participants how human or animal/machine-like various groups appear to be. Above the slider scale are five silhouettes meant to guide people's responses. In the animalistic dehumanization measure, participants view silhouettes representing the evolution of humans, with the first image representing the common ancestor between humans and apes, and the last image representing modern

humans. In the mechanistic dehumanization measure, participants view silhouettes of machines ranging from various levels of complexity from calculators, to robots, and finally humans. Subtle measures of dehumanization often rely on measuring the extent to which various traits are ascribed or denied. For example, in our study, we used uniquely human traits and human nature traits from Haslam and Loughnan (2014)—the denial of which represents subtle animalistic and mechanistic dehumanization, respectively.

Contrary to our hypotheses, we did not find people's attributions to be consistent with the dual model of dehumanization. Rather than denying some groups uniquely human traits, and other groups human nature traits regardless of trait desirability, we instead found that people tended to ascribe desirable traits to ingroups and undesirable traits to outgroups. These findings were consistent with recently published critiques by Enock et al. (2021), who suggested that trait-based dehumanization taps into ingroup-outgroup processes more broadly, rather than dehumanization. In a series of experiments, Enock et al. (2021) asked participants to rate various groups on desirable and undesirable traits that distinguished humans from other animals, robots, and angels. Taking into account desirability, Enock et al. (2021) found that people ascribed desirable traits to ingroups, and undesirable traits to outgroups regardless of whether the traits distinguished people from animals, robots, or angels.

These findings, however, do not imply that subtle dehumanization does not exist. Our study focused on asking participants to rate the extent to which uniquely human and human nature traits were descriptive of various groups, rating each group one by one. Other paradigms take on designs similar to paired conjoint experiments, where targets are rated in comparison to each other. For example, in Gray et al.'s (2007) mind perception paradigm, participants were presented the images and descriptions of two characters, and were asked whether each trait was more applicable to one character versus the other. Thus, compared to our study and that of Enock et al. (2021), Gray et al.'s (2007) paradigm forced participants to decide whether various traits associated with human agency and human experience were more associated with one person versus another. Thus, it is possible that patterns of subtle animalistic and mechanistic dehumanization would be found using this forced choice paradigm versus rating various groups individually. Additionally, Vaes (2023) found that

dehumanization effects are found using trait-based ratings when accounting for the extent to which each trait is seen as typically human.

6.3 Future Directions

The Canadian government provides several services to support the social and economic integration of immigrants. These services can be split into three broad categories: direct services, support services, and indirect services (IRCC, 2017). Direct services refers to IRCC-funded service providers that provide immigrants with various services to aid in settlement and integration ranging from language training to acquire the language skills needed to both contribute to the Canadian economy and settle within their communities, employment-related services to aid in helping immigrants enter the labour market, and community connection services to facilitate the integration of immigrants and receiving communities. Support services refers to other services, such as transportation, childcare, and transportation to facilitate accessing settlement services. Lastly, indirect services refers to community partnerships that aim at helping communities develop strategies to help immigrants integrate into the community. Examples of these indirect services include Local Immigration Partnerships (LIPs), which bring together various stakeholders within a local community to better coordinate services provided to newcomer immigrants, and Réseaux en immigration francophone (RIFs) which aim to strengthen the capacity for Francophone communities outside of Quebec to attract and integrate French-speaking immigrants. Together, these services accounted for $2.9 billion of the IRCC's budget from 2011 to 2016, with the Government of Canada pledging an additional $35 million in 2022 to facilitate the resettlement and integration of immigrants in rural communities (IRCC, 2017; IRCC, 2022c).

Given the importance of these services in the integration of immigrants in Canada, future directions for this research can take two main forms. First, it is important to examine how economic thinking is associated with support for these settlement services. Second, these services are often provided with the purpose of aiding the economic integration of immigrants. As such, how does this economic framing influence economic thinking, and subsequent support for services targeted at different immigrant groups (e.g., refugees)?

Examining the role of attitudes in influencing people's support for immigration services can have important implications in the social and economic integration of

immigrants. As mentioned in the previous section, the government funds various direct and indirect services to assist in settling immigrants into their local communities. An important pillar of this strategy is the existence of community partnerships, such as the Local Immigration Partnerships (LIPs), that bring together stakeholders including those who do not *directly* work in settlement services, but who could help immigrants integrate into the local community. Thus, while past research has found that there is inconsistent evidence for the effect of public opinion on shaping policy itself (Landrlault, 2016; Page & Shapiro, 1983), these policies create a direct line between local community members and their ability to help immigrants. As such, it is important to look at how economic thinking and pro-diversity attitudes influence people's intentions to help immigrants.

In the previous chapters, we found that preferences for highly educated immigrants were largely consistent regardless of one's attitudes; however this does not inform us on people's willingness to provide support for integration. Though people, regardless of their socio-economic backgrounds, prefer highly educated and skilled immigrants (Hainmueller & Hiscox, 2010; Hainmueller & Hopkins, 2015; Helbling & Kriesi, 2014), these preferences may stem, in part, from the belief that skilled immigrants would be less dependent on government services (Dustmann & Preston, 2006; Helbling & Kriesi, 2014). In line with these findings, research on Germans' attitudes towards economic migrants and refugees have found that economic migrants elicit feelings of envy and lower willingness to help, while refugees elicit feelings of paternalism and a greater desire to help among participants (Wyszynski et al., 2020). Given these findings, it is possible that economic thinking may lead to a lower desire to support community initiatives aimed at helping immigrants integrate, *because* those who engage in economic thinking are less likely to prefer immigrants they see as dependent on government services.

One potential mechanism between attitudes and the support of settlement services is dehumanization. In Chapter 5, we found that economic thinking was positively associated with the mechanistic dehumanization of immigrants, and cultural enrichment beliefs was negatively associated with animalistic dehumanization in general. This may lead to lower support for community initiatives aimed at helping immigrants integrate, as both mechanistic and animalistic dehumanization have been linked to a lower desire to provide assistance to those in need (Andrighetto et al., 2014). As such, in future studies, it would be important to

examine how narrative framing about immigration influence people's attitudes. For example, discussions about the economic contribution of immigrants, though positive on the surface, may inadvertently lead to greater economic thinking and subsequently greater mechanistic dehumanization and lower support for programs aimed at helping immigrants integrate. Conversely, messages promoting the importance of diversity as a value may lead to lower animalistic dehumanization overall, and counteract the effects of economic thinking.

In addition to probing the association between economic thinking, cultural enrichment beliefs, and support for integration services, the types of services provided may also lead to different levels of support. For example, the IRCC funds services that are more targeted towards economic integration, such as language training and employment-related services, as well as social integration with community-based group events and peer support groups (IRCC, 2017). Those who score high on economic thinking may be more supportive of services aimed at helping the economic, versus social, integration of immigrants. Conversely, cultural enrichment beliefs may be associated with support for both services aimed at the economic and social integration immigrants, because this measure tends to be correlated with individual differences related to helping others in general (e.g., high honesty-humility, low social dominance orientation, etc.).

Lastly, while economic thinking was associated with less positive attitudes towards non-economic migrants in Chapter 3, it is unclear whether economic thinking would also be associated with lower support for services aimed at helping non-economic migrants integrate. One of the few differences we saw in Chapter 4 as a function of economic thinking was the preference for immigrants who received their educational training in Canada. That is, those who scored high on economic thinking preferred immigrants who received their education in Canada, while exhibiting bias against those who received their education abroad. In contrast, these patterns of preferences did not appear for those who score low in economic thinking. Given that refugees tend to elicit a greater desire to help among participants relative to economic migrants (Wyszynski et al., 2020), those who score high on economic thinking may be more willing to provide refugees with assistance in terms of accessing educational and training opportunities in Canada. Additionally, as people's preferences for skilled immigrants stem in part from a preference towards immigrants they perceive to be less dependent on government resources (Dustmann & Preston, 2006;

Helbling & Kriesi, 2014), framing these services as helping refugees become more independent may elicit further support from those who score high on economic thinking.

6.4 Conclusions

We sought to develop a novel immigration scale that minimized competitive framing, in order to better disentangle people's economic concerns about immigration and feelings of xenophobia. Across several studies, we developed the Economic Thinking and Cultural Enrichment Beliefs About Immigration (ETI / CTI) scale, assessing the extent to which people consider the economic impact of immigration (ETI) and the extent to which they view immigration culturally enriches the receiving country. We focused on these two factors to try to mirror how immigration is discussed in the public sphere, focusing both on the economic contribution of immigrants and their cultural contributions.

We found that economic thinking and cultural enrichment beliefs were related, but distinct constructs. In general, economic thinking was associated with personality and ideological factors traditionally associated with anti-immigrant prejudice, while cultural enrichment beliefs were associated with traits traditionally associated with pro-immigration attitudes. Economic thinking, however, was not uniformly associated with anti-immigration attitudes. Those who scored high on economic thinking tended to show preferences towards economic migrants and ethnic groups associated with stereotypes of economic success (e.g., model minority stereotypes), suggesting that this attitude is tapping into preferences beyond labour market competition. Despite this, there was little variation in preferences for immigrant's educational and economic characteristics as a function of economic thinking and cultural enrichment beliefs, consistent with past findings that people tend to prefer high skilled immigrants regardless of their background. Finally, economic thinking was also associated with greater mechanistic dehumanization of immigrants, in contrast to cultural enrichment beliefs which was associated with lower dehumanization overall, regardless of target groups.

These findings have important implications for research on strategies to reduce anti-immigration prejudice and support for immigration policies. Future research should focus on whether employing narratives of immigrant's economic success influences the extent to which people engage in economic thinking, as it may have unintended consequence of

mechanistically dehumanizing immigrants. Additionally, it is unclear how economic thinking is associated with policies meant to aid in the social and economic integration of immigrants. On one hand, those who score high on economic thinking may support these initiatives overall if economic thinking is associated with a preference against immigrants perceived to be "dependent" on government aid. However, proper framing about the potential economic benefit of these initiatives may lead to greater support for these policies. Overall, the development of this scale and its utility has opened up opportunities for additional fruitful research endeavors to better understand people's attitudes towards immigrants and immigration policy.

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Appendices

Appendix A: Full correlation matrix between ETCEI attitudes and HEXACO.

Variable	*M*	*SD*	1	2	3	4	5	6	7
1. CEI	5.85	1.02							
2. ETI	4.65	1.21	-.45** [-.53, -.37]						
3. Honesty-Humility	3.45	0.59	.17** [.08, .27]	-.20** [-.29, -.10]					
4. Emotionality	3.33	0.65	.22** [.12, .31]	-.25** [-.34, -.15]	.01 [-.09, .11]				
5. Extraversion	2.85	0.70	-.06 [-.16, .04]	.10 [-.00, .19]	-.07 [-.16, .03]	-.23** [-.32, -.13]			
6. Agreeableness	3.16	0.61	.11* [.01, .21]	-.11* [-.20, -.01]	.24** [.15, .33]	-.11* [-.21, -.01]	.14** [.04, .24]		
7. Conscientiousness	3.65	0.58	.01 [-.09, .11]	.05 [-.05, .15]	.20** [.11, .30]	-.00 [-.10, .09]	.27** [.18, .36]	.02 [-.08, .12]	
8. Openness	3.55	0.66	.26** [.17, .35]	-.29** [-.38, -.20]	.14** [.04, .23]	.16** [.06, .25]	.09 [-.01, .19]	.01 [-.09, .11]	.11* [.01, .20]

Appendix B: Pairwise comparisons for desirable human nature and uniquely human trait ratings within groups and across groups

There was a significant three-way trait valence × interaction type × target group $F(4.83, 2324.39) = 12.16$, $p < .001$. The table below focuses on the pairwise trait type × target group interaction for desirable traits, $F(4.89, 2350.22) = 23.33$, $p < .001$.

Contrast	M_D	*SE*	*t*	p_{adj}
Within-Group Ratings				
Human Nature – Uniquely Human				
Canadians in general	0.10	0.05	3.27	.010
Economic Migrants	-0.12	0.06	-3.58	.005
Family Class Migrants	0.01	0.07	0.34	1.000
International Students	0.19	0.07	4.89	<.001
Refugees	-0.25	0.07	-6.72	<.001
Temporary Foreign Workers	-0.03	0.06	-0.68	1.000
Across-Group Ratings				
Human Nature				
Canadians in general –				
Economic Migrants	0.49	0.05	11.03	<.001
Family Class Migrants	0.92	0.06	17.05	<.001
International Students	0.28	0.06	5.53	<.001
Refugees	0.75	0.06	14.01	<.001
Temporary Foreign Workers	0.49	0.06	9.78	<.001
Economic Migrants –				
Family Class Migrants	0.43	0.06	8.53	<.001
International Students	-0.22	0.06	-4.76	<.001
Refugees	0.26	0.06	4.85	<.001
Temporary Foreign Workers	0.00	0.06	-0.06	1.000
Family Class Migrants –				

Contrast	M_D	*SE*	*t*	p_{adj}
International Students	-0.64	0.07	-12.07	<.001
Refugees	-0.17	0.07	-3.44	.007
Temporary Foreign Workers	-0.43	0.07	-7.89	<.001
International Students –				
Refugees	0.47	0.07	8.86	<.001
Temporary Foreign Workers	0.21	0.07	4.26	<.001
Refugees –				
Temporary Foreign Workers	-0.26	0.07	-5.42	<.001
Uniquely Human				
Canadians in general –				
Economic Migrants	0.27	0.06	5.51	<.001
Family Class Migrants	0.83	0.06	14.57	<.001
International Students	0.37	0.06	6.29	<.001
Refugees	0.39	0.06	6.84	<.001
Temporary Foreign Workers	0.36	0.06	6.84	<.001
Economic Migrants –				
Family Class Migrants	0.56	0.06	10.70	<.001
International Students	0.10	0.07	2.06	.320
Refugees	0.13	0.06	2.32	.180
Temporary Foreign Workers	0.10	0.06	2.03	.320
Family Class Migrants –				
International Students	-0.46	0.07	-8.38	<.001
Refugees	-0.44	0.07	-8.05	<.001
Temporary Foreign Workers	-0.47	0.07	-8.41	<.001
International Students –				
Refugees	0.02	0.07	0.38	1.000
Temporary Foreign Workers	-0.01	0.07	-0.14	1.000
Refugees –				
Temporary Foreign Workers	-0.03	0.07	-0.65	1.000

Appendix C: Pairwise comparisons for undesirable human nature and uniquely human trait ratings within groups and across groups

There was a significant three-way trait valence × interaction type × target group $F(4.83, 2324.39) = 12.16$, $p < .001$. The table below focuses on the pairwise trait type × target group interaction for undesirable traits, $F(4.84, 2326.21) = 12.91$.

Contrast	M_D	*SE*	*t*	p_{adj}
Within-Group Ratings				
Human Nature – Uniquely Human				
Canadians in general	0.20	0.06	5.70	<.001
Economic Migrants	0.18	0.06	5.06	<.001
Family Class Migrants	-0.05	0.07	-1.41	.790
International Students	0.31	0.07	7.26	<.001
Refugees	0.17	0.07	4.32	<.001
Temporary Foreign Workers	0.08	0.07	2.15	.352
Across-Group Ratings				
Human Nature				
Canadians in general –				
Economic Migrants	0.04	0.06	0.92	1.000
Family Class Migrants	-0.17	0.06	-3.58	.007
International Students	-0.16	0.06	-3.35	.015
Refugees	-0.28	0.06	-4.84	<.001
Temporary Foreign Workers	-0.09	0.06	-1.76	.632
Economic Migrants –				
Family Class Migrants	-0.22	0.06	-5.02	<.001
International Students	-0.21	0.06	-5.03	<.001
Refugees	-0.32	0.06	-6.80	<.001
Temporary Foreign Workers	-0.13	0.06	-3.15	.032
Family Class Migrants –				
International Students	0.01	0.06	0.20	1.000

Contrast	M_D	*SE*	*t*	p_{adj}
Refugees	-0.10	0.06	-2.45	.180
Temporary Foreign Workers	0.08	0.06	1.99	.460
International Students –				
Refugees	-0.11	0.06	-2.49	.169
Temporary Foreign Workers	0.07	0.06	1.69	.632
Refugees –	-	-	-	1.000
Temporary Foreign Workers	0.19	0.06	4.46	<.001
Uniquely Human				
Canadians in general –				
Economic Migrants	0.02	0.06	0.45	1.000
Family Class Migrants	-0.43	0.07	-7.32	<.001
International Students	-0.06	0.07	-1.03	1.000
Refugees	-0.31	0.07	-5.03	<.001
Temporary Foreign Workers	-0.21	0.07	-3.55	.008
Economic Migrants –				
Family Class Migrants	-0.45	0.07	-8.98	<.001
International Students	-0.08	0.07	-1.71	.632
Refugees	-0.33	0.07	-6.53	<.001
Temporary Foreign Workers	-0.24	0.07	-5.00	<.001
Family Class Migrants –				
International Students	0.37	0.07	6.83	<.001
Refugees	0.12	0.07	2.52	.168
Temporary Foreign Workers	0.21	0.07	4.41	<.001
International Students –				
Refugees	-0.25	0.07	-4.52	<.001
Temporary Foreign Workers	-0.16	0.07	-2.81	.075
Refugees –				
Temporary Foreign Workers	0.00	0.07	2.00	.460

Appendix D: Pairwise comparisons for relative humanization vs (animalistic or mechanistic) dehumanization across groups

There was a significant two-way interaction between dehumanization type and target group, $F(3.19, 1529.78) = 57.70$, $p < .001$. The table below summarizes the pairwise comparisons within groups and across groups.

Contrast	M_D	*SE*	*t*	p_{adj}
Within-Group Ratings				
Humanization (vs Animalistic Dehumanization) – Humanization (vs Mechanistic Dehumanization) [a]				
Canadians in general	3.98	1.01	5.30	<.001
Economic Migrants	12.29	1.22	12.69	<.001
Family Class Migrants	2.26	1.31	2.74	.054
International Students	10.67	1.37	10.88	<.001
Refugees	-0.24	1.45	-0.25	1.000
Temporary Foreign Workers	9.54	1.39	9.56	<.001
Across-Group Ratings				
Humanization (vs Animalistic Dehumanization) [b]				
Canadians in general –				
Economic Migrants	0.31	0.89	0.70	1.000
Family Class Migrants	4.08	1.09	6.21	<.001
International Students	1.90	1.00	3.30	.011
Refugees	6.09	1.19	7.75	<.001
Temporary Foreign Workers	4.19	1.05	6.77	<.001
Economic Migrants –				
Family Class Migrants	3.77	1.09	6.59	<.001
International Students	1.59	1.00	3.35	.010
Refugees	5.78	1.19	7.96	<.001
Temporary Foreign Workers	3.88	1.05	7.71	<.001
Family Class Migrants –				

Contrast	M_D	*SE*	*t*	p_{adj}
International Students	-2.18	1.19	-3.71	.003
Refugees	2.01	1.35	3.83	.002
Temporary Foreign Workers	0.11	1.22	0.24	1.000
International Students –				
Refugees	4.19	1.28	6.11	<.001
Temporary Foreign Workers	2.29	1.14	4.24	<.001
Refugees –				
Temporary Foreign Workers	-1.90	1.31	-3.79	.002
Humanization (vs Mechanistic Dehumanization) [c]				
Canadians in general –				
Economic Migrants	8.61	1.31	10.36	<.001
Family Class Migrants	2.36	1.24	2.85	.050
International Students	8.58	1.37	9.07	<.001
Refugees	1.87	1.30	1.94	.424
Temporary Foreign Workers	9.75	1.36	9.59	<.001
Economic Migrants –				
Family Class Migrants	-6.26	1.42	-6.55	<.001
International Students	-0.03	1.54	-0.04	1.000
Refugees	-6.74	1.47	-6.21	<.001
Temporary Foreign Workers	1.14	1.53	1.35	1.000
Family Class Migrants –				
International Students	6.23	1.48	6.16	<.001
Refugees	-0.49	1.41	-0.75	1.000
Temporary Foreign Workers	7.40	1.47	8.61	<.001
International Students –				
Refugees	-6.72	1.53	-6.05	<.001
Temporary Foreign Workers	1.17	1.58	1.21	1.000
Refugees –				
Temporary Foreign Workers	7.88	1.52	8.83	<.001

[a] Positive values indicate greater mechanistic (vs animalistic) dehumanization
[b] Negative values indicate greater mechanistic dehumanization relative to the reference
[c] Negative values indicate greater animalistic dehumanization relative to the reference

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