A systematic approach to reduce the transient problem in Fort Collins

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Master Thesis
Submitted in partial fulfilment of the requirements of
Master of Philosophy in System Dynamics
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June 2017

Abstract

The phenomenon of transients and homeless in our society represents a complex reality. Transiency has existed for centuries, and the causes of it further differentiate the individuals involved.

Fort Collins (Colorado), an untroubled city which presents a crime rate 47% lower than the U.S. average, is inexplicably experiencing an increase of the transient population. Due to unseemly behaviour like sexual assaults, harassment, fights, drug use, aggressiveness against passersby or violence, between others, concerns of both authorities and citizens can not stop escalating.

This thesis focuses on the analysis of transiency as a social phenomenon in Fort Collins through System Dynamics, to support a broader understanding of the causes behind it through feedback mechanisms, lags and cumulative processes, along with a combination of Grounded Theory and a recompilation of Qualitative and Quantitative Data. In addition to this analysis, it is carried out the design and implementation of a policy strategy to change the trend of the forecast. The aim of this research is shedding some light on the issue and giving the first step towards specific research about transiency and how much can it affect to a place. This study intends to fill a gap both in Urban Sociology and in Urban Policy-making, where is so complicated to segregate the actions towards a complex group such is homeless population.

Keywords: Transient, Transiency, Homelessness, Vagrancy, Sociology, Urban Policy, Urban Sociology, Urban Dynamics, Policy Making, Public Policy, Social Problem, Fort Collins, Colorado

Acknowledgments

First and foremost, my eternal appreciation to my parents, Gabriel and Gina, who have always encouraged me. I owe it all to them. This thesis would not have been possible without their emotional, personal and financial support.

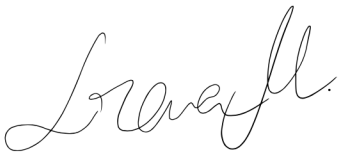
I am deeply grateful to my best friend and partner, Andreas Olsen, for his affection, support, optimism and faith in me during this journey.

I would like to express my sincere gratitude to my thesis advisor, David Wheat, for his interest, advises, sincerity and patience. Without his guidance this thesis would hardly have been completed. It has been an honour to be one of his last supervised students.

Thanks to my fellow master students Benedicte Wilson, Erlingur Tryggvason, Shruti Chauhan, Mehdi Poornikoo, Stefan Katz and Rita Guillot for their feedback, support and of course friendship. I couldn't be more grateful for having them in my life.

Finally, last but by no means least, I am thankful to the City of Fort Collins, for giving access and valuable insight into their beautiful city. Furthermore, I am thankful to the University of Bergen for supporting me to pursue my career goals.

June 22, 2017



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1. INTRODUCTION

1.1 BACKGROUND

Fort Collins, city located in the north of Colorado, is known as the home of Colorado State University. It sits next to the Rocky Mountains and along the Cache La Poudre River at 5,000 ft. in elevation, which allows an enjoyable four season climate. With a 2017 estimated population of 175,500[1], it is the fourth most populous city in Colorado after Denver, Colorado Springs, and Aurora.

The town has won hundreds of awards such as the title of America's Most Satisfied City[2], No. 4 Happiest City in America[3] or No. 2 Best Cities for Small Business Owners[4], between many others. The unemployment rate in Fort Collins is 2.10%, which is a 54,34% lower than the national average[5]. And when it comes to violent crimes, Fort Collins shows a crime rate that is 39% lower than the Colorado average and 47% lower than the U.S. average[6].

Tourism is a very important element of Fort Collins' economy. According to the 2011 study "Estimating the Economic Impacts of Tourism in the Fort Collins Economy" conducted by Colorado State University, the industry is responsible for 1,600 jobs, $58 million in household income and $11.3 million in city tax revenue. During 2016, the town received the visit of approximately 15,000 tourists compared to 10,090 the year before[7]. Many of the downtown shops and restaurants retailers have noticed an increase in local traffic in downtown and according to Cynthia Eichler, president and CEO of Visit Fort Collins, Old Town´s tourism boom remains hard to measure.

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[1] "Official Web Site Of The City Of Fort Collins || City Of Fort Collins". *Fcgov.com*. N.p., 2017. Web. 1 Apr. 2017.

[2] "Fort Collins, Colorado Is America's Most Satisfied City". *Time.com*. N.p., 2014. Web. 1 Oct. 2016.

[3] Stebbins, Samuel, Evan Comen, and Thomas Frohlich. "The Happiest (And Most Miserable) Cities In America". *247wallst.com*. N.p., 2016. Web. 20 Nov. 2016.

[4] "Best Cities For Small Business". *ValuePenguin*. N.p., 2017. Web. 20 Mar. 2017.

[5] Based on Fort Collins Area Economic Summary published by Bureau of Labor Statistics in May 03, 2017

[6] "Crime In Fort Collins, Colorado (CO): Murders, Rapes, Robberies, Assaults, Burglaries, Thefts, Auto Thefts, Arson, Law Enforcement Employees, Police Officers, Crime Map". *City-data.com*. Web. 10 Apr. 2017.

[7] "Old Town's Tourism Boom Remains Hard To Measure". *Coloradoan*. N.p., 2017. Web. 20 May 2017.

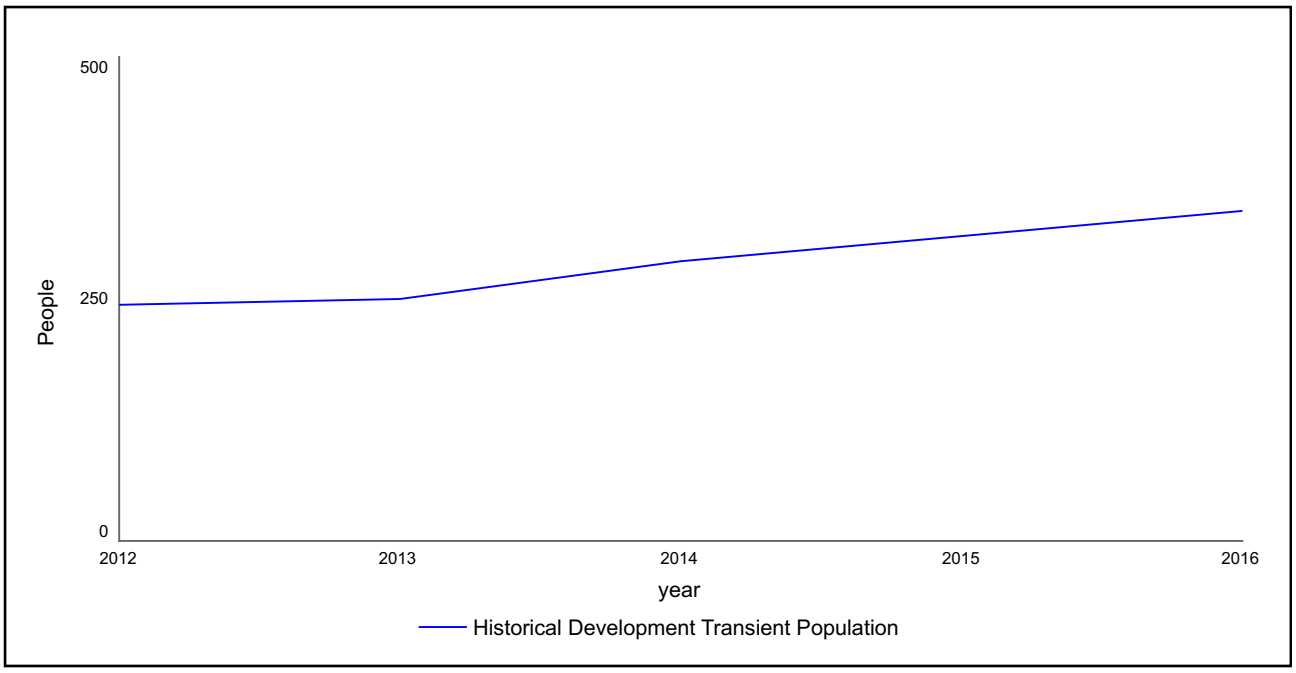

Figure 1: Reference mode of Stock of Transient Population in Fort Collins (Estimated data/Source: The Coloradoan and Larimer County Jail)

However, the increase of visitors perceived during the last years has not always been positive. The many opportunities offered by the town have attracted not just tourists, but transients, a group of the population characterised by moving from community to community. From approximately 2012 the town began to experience an increase of the transient population. This is a concern for the population of Fort Collins, due to the increment of problems as sexual assaults, harassment, fights, drug use, aggressiveness against passersby, violence or unseemly behaviour, between others. Fort Collins and transient interactions keep increasing over time[8], as during 2014 police contacted transients 1193 times, in contrast with 629 times in 2013 and 580 times in 2012. Fort Collins police found a 69 percent spike in the number of contacts with transients from Jan. 1 to Sept. 7 during 2014 compared to 2013 in the downtown area[9], and the problems kept growing. Even the City Manager of the town, Darin Atteberry pointed in 2014 that "In his 10 years as city manager for the city of Fort Collins, it is certainly been one of the most challenging issues I think the community and the organization has faced."

According to a survey developed by The Coloradoan to Fort Collins citizens[10], 30% of the interviewed people avoid going to downtown due to the panhandlers (and many of them are transients). There have been several "Transient Population Discussions" where members of the

[8] "Fort Collins Police And Transient Interactions Increase". *Coloradoan*. N.p., 2015. Web. 2 Feb. 2017.

[9] "Business Owners Near Transient Park Demand Action". *Coloradoan*. N.p., 2014. Web. 11 Dec. 2016.

[10] "Tourists, Transients Change Old Town Perceptions". *Coloradoan*. N.p., 2017. Web. 20 May 2017.

community have offered different perspectives of the issue and has been discussed the transient population growth and their impact on homeowners, renters, business owners, tax payers and voters. In addition, there has been initiated a community-driven outreach called Outreach Fort Collins, with the aim of *building relationships with community members, service providers, businesses and city services as a means to address and deescalate disruptive behaviors downtown*.

To all the problems experienced by the town, it is added the inconvenience of the difficulty of identifying who are transients and who are homeless since sometimes the line is very thin. Transients are commonly mistaken with homeless. Nonetheless most of the transients don't identify themselves as homeless, even though they have not got a permanent address. The reason is because in the most of the cases, being transient is a choice; is choosing a lifestyle. Transiency is more than homelessness. As the word indicates, the adjective *transient* describes something that always changes or moves around. In this case are people. In this thesis, by transients are meant all those individuals who don't have a residence place, are not local of Fort Collins and travel every some weeks (or even months) from place to place.

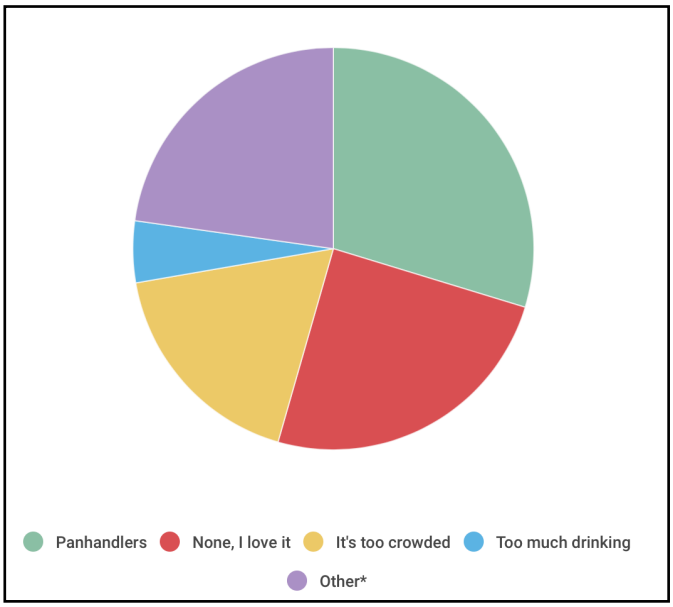

Figure 2: Survey to Fort Collins citizens about why they avoid downtown

1.2 RESEARCH OBJECTIVES

As Warren (2008) suggested, there are three questions which are helpful to analyse how systems perform over time; why is this happening, what is the forecast and how can it be changed. The aim of this work is to use system dynamics to identify the main causes that lead transient individuals to go to Fort Collins, which would answer to "why is this dynamic behaviour happening". In the exploration of those causes, it is analysed how would the system develop in the future if all the variables remain as they are. Last, it is suggested a policy in order to improve the situation of the town.

The research objectives are applied to the actual situation of the City of Fort Collins. This city, began to experience the phenomenon of transiency relatively recently (in approx. 2012) and

due to internal conditions of the town like size, internal cooperation between organisations, public interest, media visualisation and so on, it has been possible to observe that there has been a negative impact on the town caused by transient individuals. The numbers that compound the historical development of transients in Fort Collins is estimated data based on information found in many articles of the local newspaper The Coloradoan. There is not available any kind of specific historical numbers regarding transients in Fort Collins due to the complexity of their nature and the difficulty of the authorities to track them. With regard to this, there is undoubtedly no information either about the exact number of crimes produced by transients, but they are nonetheless noticeable by Fort Collins´s population due to their behavior.

One of the purposes of this research is shedding some light on the issue and giving the first step towards specific research about transiency and how much can it affect to a place. This study intends to fill a gap both in Urban Sociology and in Urban Policy-making, where is so complicated to segregate the actions towards a complex group such is homeless population. Lastly, this thesis also aims to give an indication towards a solution that could be implemented not just in Fort Collins, but in places with similar scenarios.

2. METHODOLOGY

The main method used in this thesis is quantitative system dynamics modeling and simulation based analysis. As in System dynamics, the problems addressed by this thesis are based on the premise that the structure of a system, that is, the way essential system components are connected, generates its behavior (Sterman, 2000). According to Jay Forrester (1994), this kind of tool is necessary because, while people are good at observing the local structure of a system, they are not good at predicting how complex, interdependent systems will behave. System Dynamics is used for studying dynamic systems which we can observe over time. Analysing the development of a complex structure and its components can help to understand its complications better since the most of the problems that arise in a system are “feedback problems” (Barlas, 2009).

The objective of this thesis is showing how organizational structure, the feedback between the elements of the system and time delays interact to influence the development over time. Social systems typically are originated from a synergy of relationships. In order to determine which kind of relationships influence the increment of the transient population in Fort Collins it has been used as Research Method a combination of Grounded Theory and a recompilation of Qualitative and Quantitative Data from local media, local associations and information provided by the City of Fort Collins.

3. BACKGROUND AND RELEVANT THEORY

3.1 HOMELESSNESS AND TRANSIENCY

The Congress of the United States defines homelessness in the *Code § 11302* as *an individual or family who lacks a fixed, regular, and adequate nighttime residence.* Absolutely homeless persons are considered those who do not have a place to call home (including persons who are staying in a shelter or sleeping rough) or those who are staying temporarily with others (i.e. couch surfing). Persons who due to particular circumstances like pending evictions, extremely low income, familial abuse or an inability to pay rent, are considered at elevated risk of homelessness.

Although transients in general have not got a permanent address, some of them do not identify themselves as homeless. The reason is because in the most of the cases, being transient is a choice; is choosing a lifestyle. *Transient* is the postmodern definition of a *vagrant*. Transient people define themselves as houseless, nomads or vagrants, between many other definitions. Train Tom, the transient author of the blog "The Transient Way", wrote in a article called *Transients vs Homeless* that a *transient man will not sit on the street corner begging for money […], he will come into town for a short time, find some sort of seasonal or other sort of gainful employment, will live off the land, will sleep under the stars, will share stories and songs and music with others like him, and then will be on his way to the next town*. He added that *vagrants are not afraid of work and they may be "poor" in a sense, but many of them are skilled laborers who do earn money.* Train, who adopted the transient lifestyle more than 12 years ago, says that has no plans of returning to a "carpet-walking lifestyle" again. He affirms that transiency *it is a beautiful lifestyle where nearly everything we need to survive can be found or traded for*. And requests to *know a true vagrant from a homeless person…Give the homeless man your change, your compassion…they are the ones that need it. Vagrants just appreciate a warm smile and maybe a can of beans if you have it to spare.* Although this transient presents vagrancy in a "romantic way", the reality is that not all the transients share that lifestyle or have such a peaceful mindset. As a matter of fact, Larimer County Sheriff Justin Smith affirmed that the panhandlers of Fort Collins "are not simply homeless people, they are criminals who move here without anywhere to live"[11].

[11] "Concerns Regarding Transients Hit Fever Pitch In Fort Collins". *Coloradoan*. N.p., 2016. Web. 20 May 2016.

Transience was described by Pollio (1997) as comprising four dimensions based on the concepts of migration, duration, intention and involvement. Accordingly, migration is viewed as a core element of transience; transient persons are those who have moved from their communities of origin. Persons who have never moved or migrated are deemed to be non-transient.

Regarding to the intention, which deals with the reasons for a move, homeless persons often are motivated to move to specific communities in order to be close to family or friends, or for employment, education, or access to services. According to Pollio (1997), in some instances the lack of a specific purpose for moving to a community can indicate greater transience. Homeless can become transients and move from a community to other triggered by many factors. Transients use to have a lack of intentionality.

The fourth and last consideration studied by Pollio, involvement, may indicate a level of commitment to staying in the community. Homeless persons may become involved with service networks or with others in the street community. On the other hand, transients do not constitute a cohesive or organised group. The transient individual tends to be isolated, independent, solitaire, rootless, without family or without contact with their family, who due to diverse circumstances, wants or needs to explore new geographical zones. It can be said that rootlessness and social marginalisation could be the substantives that frame better this lifestyle. Moving geographically from one place to other, stopping in some places for short periods of time with the only scope of solving basic needs as feeding, sleeping or hygiene in the most of the cases, and finding themselves in many others.

This group of people form a new sociological category that in general the society does not understand. Transients are usually detected as homeless, bohemians, people who doesn't want to work, lazy or even thieves. The a priori value judgement does not allow to understand the causes that lead them to choose living that way, although the causes exist.

Furthermore, the precariousness of the transient life shows his constant degenerative process. On the one hand, there is a concrete socio-labor situation; someone low or non-qualified and unemployed. On the other hand, a low or null socio affective environment: without family or without contact with the family, without friends, without a fix residence and sometimes, even with mental or physical problems, which lead the person to go into a vicious marginality circle.

The mechanisms that society uses to integrate any individual are the family, work, social environment and the acceptance of social values. None of these mechanisms works to integrate transients. They push the transients out of the society standards and contribute to bring them closer to the marginality.

The causes of transiency further differentiate the individuals involved. Some are propelled onto the road by forces over which they had little or no control: economy, social service cuts, deinstitutionalizations or evictions. Others are willingly, motivated by wanderlust, the lure of adventure, or the implicit promise of opportunity and success just beyond the horizon. In popular perception distinctions between types of transients and between individual situations have rarely been made, and allowances for autonomy are minimal. The categorisation is not just needed from a sociological perspective, but from a political. Different people compound different groups, therefore different policies have to be applied. In the same way, the transient related problems are generally different than problems occasioned by any other group of the society. Transients don not have homes, community affiliation or stable employment. They do not pay taxes or contribute economically to the city but get social benefits.

Individuals of any age, sex, race or social group could become transients but as it happens with the homeless, statistics show that individuals with some characteristics are more predominant than others. As Pressat (1977) pointed, the age has a really important value in the personal development. Kauppi and Pallard (2015) indicated in a study about migratory and transient homelessness that the most of the transient people are adult men (in their mid to late 30s) whereas women constituted a smaller minory. However, the most of them expressed that adopted the transient lifestyle in their youth. During youth and adulthood, the possibilities of growth and personal development are the highest, but also the possibilities of choosing how to live. Therefore, its logical to assume that the period when people decide to embrace this lifestyle is between youth and adulthood.

Regarding children and youth, the McKinney-Vento Homeless Education Assistance Act, Section 725 (as cited in National Coalition for the Homeless, 1999) states, “Homeless children and youths ...”

. a) means individuals who lack a fixed, regular, and adequate nighttime residence (within the meaning of section 103(a)(1); and

. b) includes –

. (i) children and youths who are sharing the housing of other persons due to loss of housing, economic hardship, or a similar reason; are living in motels, hotels, trailer parks, or camping grounds due to the lack of alternative adequate accommodations; are living in emergency or transitional shelters; are abandoned in hospitals; or are awaiting foster care placement;

. (ii) children and youths who have a primary nighttime residence that is a public or private place not designed for or ordinarily used as a regular sleeping accommodation for human beings (within the meaning of section 103(a)(2)(c);

. (iii) children and youths who are living in cars, parks, public spaces, abandoned buildings, substandard housing, bus or train stations, or similar settings; and

. (iiii) migratory children (as such term is defined in section 1309 of the Elementary and Secondary Education Act of 1995) who qualify as homeless for the purposes of this subtitle because the children are living in circumstances described in clauses (i) through (iii). (p. 8)

Homelessness of children and youth is particularly tragic. Estimates indicate that 1 to 3 million children and adolescents in the United States are homeless (National Coalition for the Homeless, 1999). As mentioned earlier, homelessness does not mean transiency, or viceversa. However, in the case of minors, the motivations and objectives to adopt this lifestyle are very related with the socioeconomic status, Physical, sexual, or/and psychological abuse (Shane, 1996), natural disasters or other trauma.

About the civil status, a strong majority of transient persons are not in marital or common-law relationships. They tend to be single, divorced or widowed. Moreover, very few of those who are absolutely homeless and migrant are in married or common- law relationships. However, in the last years it has increased the predominance of couples and even families. Family homelessness and migratory homelessness has emerged as a serious global problem (Stronge, 2000). Over the past 25 years in the United States, the makeup of this population group has changed significantly.

Unemployment seems to be a major cause that leads people become transient or traveller and the professional category can be very broad. Despite this, the most of the population of this group seems to be categorised as unqualified. However, when they have access to temporal or seasonal jobs, they develop any kind of manual works.

Regarding to health, a research developed by the International Journal of Sustainable Development (2015) showed that people who had experienced homelessness, whether or not they had migrated, were likely to have had mental or physical health problems. Among those who had migrated, a third reported mental health problems. Most commonly mentioned were stress, anxiety or depression, specific disorders such as bi-polar, schizophrenia, multiple personality disorder, PTSD, agoraphobia, obsessive-compulsive disorder, or multiple disorders, suicidal ideation or addictions-related disorders. Close to half of the respondents of that research reported physical health problems; most common were chronic health conditions such as asthma, blood pressure,

diabetes, cardio-vascular, arthritis, epilepsy or immune disorders and a substantial number of transients persons reported problems with their back, legs, knees or feet.

Finally, with regard to prior experiences with homelessness and sleeping rough, the majority of migrants reported having been absolutely homeless within their lifetimes and most had been homeless in the previous year (2015).

It is important to mention that although almost every person could become transient, there are special groups of people who could not become transient but could become homeless.

People with terminal or advanced diseases, disabled people or persons of a very advanced age could not adopt the transient lifestyle but could end up living in the streets. In order to live a traveling lifestyle it is beneficial for the traveler to be in good physical health because it takes a lot of strength and endurance to hop on moving freight trains and walk long distances daily.

3.2 TRANSIENCY IN FORT COLLINS

A) Why do transients go to Fort Collins?

People leave communities for a wide range of reasons. These reasons stem from problems at the community level as well as at the individual level. Community level problems pertain to a lack of services, including medical, mental health, education or other services, a lack of employment or housing or the characteristics of communities. Transients could leave their origin community due to factors such as isolation, racism, particular rules and regulations or general insecurity within the community. The experience of relationship problems could also be identified as both a community and an individual level problem.

Nevertheless, issues such as domestic violence must be viewed as systemic, community- and societal-level problems given the gendered nature of most family violence in which women are typically those who are battered or abused. Similarly, while loss through the death of family members was identified and could be seen by some as an individual factor, elevated risks of illness and death are structural factors linked to a lack of health services in many First Nations. The same argument can be applied to addictions issues. Additionally, some transients travel to Fort Collins encouraged or supported by family members or friends. Other reasons to arrive there could be being helped by service providers to leave another community, having problems in the previous place or travelling to obtain health or social services.

Wanderlust is an essential part of the traveling community where the feeling to pick up and go is strong. Travelers get an impulse to travel and make a conscious decision to explore the world around them. Wanderlust creates the desire to refuse the need of association and organization that ultimately separates the traveler from the rest of society (Trask 2003). The appeal of the open road and traveling has many benefits that include: freedom to be mobile; meeting people and seeing places most people will never get the chance to see. However, stopping in a place like Fort Collins with a big economical activity, easy access through almost any kind of transport (Denver Airport, city bus system, many bikeways and free bicycle service and FLEX regional bus route), many facilities (Poudre Valley Hospital, National Center for Genetic Resources Preservation, Roosevelt National Forest, Centers for Disease Control and Prevention, USDA Seed Lab Storage, National Wildlife Research Center, etc.), housing and homeless programs (Homeward2020, Murphy Center or Housing Project in Fossil Boulevard between others), legal use of marihuana and many social services or social programs (Aid to the Needy Disabled, Medicaid, Medicare Savings Programs, Child Care Assistance Program, Diversion, Food Assistance, Low Income Energy Assistance, and many others) definitely calls the attention of any traveler, homeless or people without resources.

Some travellers discover Fort Collins thanks to Hobo Virtual Jungles. A jungle is a gathering place for travelers to share information and reciprocate food, alcohol, cookware, and firewood among many other things. Some years ago, jungles were hard to find an exclusionary. With the development of technology the jungle has changed over time as the type of traveler has changed. The old jungle of swapping information and goods has evolved into an online virtual jungle where travelers are able to share information, kick-down gear, and find rides. The traveling community is now more connected with Internet websites, and able to keep track of each other's whereabouts. Some of this websites are DKCSC, Clean Kids , Squat the Planet (StP), Travelers 411 or Travel the world for free. There are hundreds, if not thousands of sites dedicated to help transients to move from one place to other with a limited (or even without) budget. Some of the goals of this pages is to share information about where to get water or electrical outlets, where to find shelter during bad weather, where a physical jungle is located, share experiences, learn about different kinds of travel, and help others understand the traveling lifestyle.

Migrant groups reported online in Squat the Planet that they had been encouraged to leave another community and to come to Fort Collins. Between the recent messages shared by users, there can be found sentences like "I need to save up some cash before I go to Fort Collins…", "…anti-homeless laws and asshole cops. I really like Nederland, Fort Collins and some of the smaller

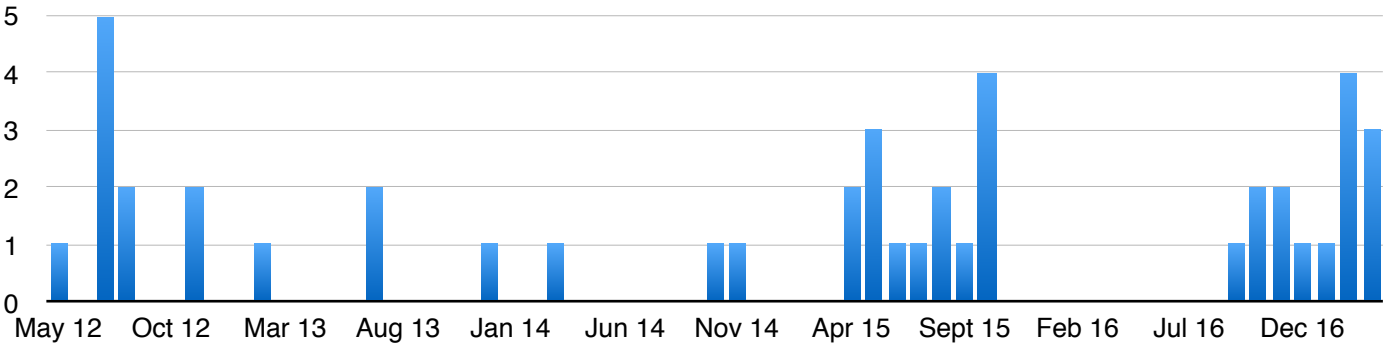

Figure 3: Number of posts per month (from May 2012 to March 2017) about Fort Collins in Squat the Planet

towns" or "Fort Collins, Loveland, Nederland, Boulder and Golden would be the only places I would like to be".

In addition, when analysing the number of posts published per month in Squat the Planet since 2010 (see Figure 3), it can be observed that the most of the questions and publications of transients about Fort Collins are realized during spring and summer[12], coinciding with the months were it is registered more transient activity in the town.

When typing the words "Fort Collins" in the Search bar of Lonely Planet, a website where travellers could find free rides to any place they want to go, there are found 91 posts of people during any date. In addition, there are *old* websites as Travel Blog, where travellers write about their experience in different cities and post pictures about them, and there can be found many posts and pictures of transients that came to Fort Collins in the last years.

Since Boulder and other cities of the surrounding areas have hardened the laws against homeless and transients, this groups are pushed to go to homeless-friendly-communities, being Fort Collins one of the favourite ones. This could be an additional reason why the number of transients of Fort Collins keeps growing over time.

B) How do they move?

The first step in quickly getting money to be able to travel is selling their things. Not only this helps paying for the trip, but it removes extra baggage. Most of the people sell their properties on Etsy, Craigslist, Ebay or put the word out to their friends on Facebook.

Travelling for free is also possible through resourcefulness, human connection and trust. One of the simplest and most popular ways to sleep for free is through couchsurfing, a website that connects transients and hosts. Another way is camping, traveling with a van (and living in it) or even housesitting, which allows a confortable long-term travel by looking after people´s vacation homes.

[12] Source: Squat the planet

Regarding to transportation, there are also ways to get it for free. Although walking and cycling gives complete freedom to the traveler, when thinking about travelling long distances it might not be the best option. Therefore travellers choose other ways as hitchhiking or the modern version of it, making use of websites as Bla Bla Car. Other popular way is work trade. Work trade has also developed thanks to the technology and there are available webpages as Work Away or Helpx, where are offered many work trade opportunities.

In order to get money for covering the basic needs, travellers make use of work trade, offer yoga lessons or any other kind of lessons or practise woofing, where hosts offer free accommodation, meals, and training in exchange for hard work.

Finally, there are also people all over the world who are traveling because other people paid for it. This is possible thanks to websites as Kickstarter, that completely changed the way that people approach business by offering an easy fundraising platform. Similar to Kickstarter is Trevolta, another website where people propose trips with a purpose and offer different donation levels with different benefits for your donors.

C) When do they move?

The moment chosen for a person to become a transient is individual and depends of personal situations. As mentioned in *3.1*, almost any person could adopt this lifestyle if they wanted. However, it appears that the longer individuals remain traveling, the greater their entrenchment in the traveling subculture and disaffiliation from traditional societal institutions. Examining the social estrangement of travellers reveals the factors associated with rejecting societal goals and means. Having a residence is a cultural goal because it symbolizes active membership in society. Homelessness is a social phenomenon where people are in hard times and in need of assistance. Travellers identify themselves as a different group of people from those who have lost their homes due to different circumstances because transients choose living that way.

Robert K. Merton's theory of anomie (1938) provides a theoretical context to make sense of the traveling lifestyle as an adaptation to social disintegration. The anxieties and pressures of mainstream society push travellers into a nonconformist lifestyle. Transients refuse to pay for a stable place to live and to occupy secure employment based on the philosophy that true freedom is experienced by traveling and interacting with the natural environment.

D) Transient related problems

The impact caused by transients in the community could be analysed from two different perspectives; the individual and the governmental. The human costs of migratory/transient homelessness are high, both for the individual and the community. Qualitative data showed that people experience a wide range of emotional impacts including loneliness, culture shock, isolation, guilt, shame, and fear. These emotional responses are amplified because of negative reactions from mainstream society (Kaupi and Pallard, 2015).

The loneliness experienced by some is linked to fear and the dangers of being homeless: some keep to themselves and find it difficult or do not try to make connections with others. Such problems are compounded for transients when they experience challenges in finding or accessing services when arriving in a new community. Other problems experienced by transients are the lack of access to services related to the gaps in services or insufficient services available to meet needs. The lack of affordable housing can also be identified as one of the impacts on homeless migrants—these people have a great deal of difficulty in obtaining suitable housing. Moreover, even the local shelter system is unable to serve the needs of all migrant/transient homeless persons effectively.

The social stigma that results from labelling travelers as homeless people stems from the societal reaction that produces actual discriminatory practices. These discriminatory practices are evident in the daily interactions with authority figures. In addition, receiving multiple tickets for trespassing, loitering, and indecent exposure could lead to imprisonment, which impedes on the traveler's ability to be mobile.

Additionally, many problems could arise inside the traveling community. The intergroup conflict facing the traveling community deserves further sociological investigation. The Social Identity Theory (Tajfel & Turner, 1979) provides a theoretical foundation to understand the intergroup conflict between members of the traveling community. The theory helps understand the psychological basis for in group discrimination. Intergroup conflict is defined as: "a social situation involving perceived incompatibilities in goals or values between two or more parties, attempts by the parties to control each other, or antagonistic feelings by the parties toward each other"(Fisher, 1990). The Social Identity Theory helps explain the intergroup conflict between members of the traveling community by exploring how group members strive to enhance or maintain their self-esteem through associating with the positive valued group.

Intergroup conflict within the traveling community is developed from different labels that stem from conflicts of interest. Conflicting interests result in competitive intergroup behaviour. Travellers are often stigmatised as homeless people and the response to this stigma is to create categories within the traveling community to distinguish between the “right” and “wrong” group. For example, the term oogle is used to label an inexperienced or inauthentic traveler as the “wrong” group, which creates a conflict of interest between veteran travellers and new travellers in terms of threatening the future of the traveling lifestyle (Martin, 2016).

Substance use and addictions have also been identified as a type of impact on homeless migrants (Kauppi and Pallard, 2015). According to Vanessa Fenley, executive director of Homeward 2020, a project with the aim of ending homelessness in Fort Collins by 2020, it was back in the 1980s that mental health issues began to accumulate within the homeless community. She stated that 68% of homeless people who participated in Homeward 2020’s point-in-time survey in 2016 reported having a disability. Fenley affirmed that much of that percentage is due to mental illness. Director Kim Larsen at the Murphy Center, organisation that connects homeless people with 17 agencies that provide different services, suggested that number is likely to be a bit higher than the survey reflects. Some communities have better treatment options and services to assist homeless people in addressing addictions. In Fort Collins HIV & HEP C Testing are provided by Northern Colorado AIDS Project, and Mental Health and Substance Abuse Counseling are given by SummitStone Health Partners.

On the other side, transients also create a big concern to the city. Once they are in the community, both government and social services have to recognise their needs and provide them assistance. There is needed a large investment to face those needs and the problems derived by them. In Fort Collins, police have increased patrols due to allegations of sexual assaults, reports of harassment, fights, drug use, aggressiveness against passersby, violence or unseemly behaviour are increasing the police mobility. The problems created by transients have escalated to such an extent that in Nov.18 of 2016, two transients participated in a first-degree murder.

During 2016, complains have increased by more than 50% and the most of them are regarding transients. Business owners in Old Town are eager to stem the influx of homeless people in the area. Fort Collins police reported that up to half of the calls requiring officer response were for illegal camping, panhandling, and disturbances downtown by homeless individuals. According to the City Manager, Darin Atteberry, businesses in the downtown area continue to request more “enforcement of behaviors,” an issue he deems “difficult for many.” In addition, Larimer County’s Sheriff announced that homeless and transient inmates cost Larimer County’s jail $5.5 million per year.

This group has increased so much that at times has threatened to hit capacity of more than a quarter of the jail population.

3.3 SOCIOLOGICAL THEORY OF TRANSIENCY

The transient lifestyle arises from some specific situations in some specific places. This research aims to explain that the decision of adopting this lifestyle is not arbitrary and it is not a coincidence either that most transients prefer Fort Collins as destiny.

Erving Goffman (1956) argues that in a social context individuals are constantly communicating with each other, mainly through verbal means but also through such means as non-verbal communication, styles of dress, homes and the commodities with which they surround themselves. People are constantly seeking information on those with whom they are interacting; information about that person´s status, self-conception and general attitudes. Moreover, Social Psychology explains through the concept of "Social Network Homogeneity" that people tend to be persuaded or convinced easily about any topic by their close social connections (Simon & Pettigrew, 1990). Networks facilitate the diffusion of information and with the development of technology we are more connected than ever. In his studies of Urban Sociology, Goffman (1956) referred to the necessity of interaction of the majority of people. In general, transients do not pursue commodities, homes or typical styles of dress, but they follow what other transients do. They are rootless but they want information about the places where they could go, what could they do there, how could they go, where could they stay and many other details. There can be found hobo jungles; places where travelers share information and reciprocate food, alcohol, cookware, and firewood among many other things. Additionally, there can also be found virtual hobo jungles where travelers are able to share information, kick-down gear, and find rides. Those places, as Fort Collins, where people find what they are looking for, is where they are attracted to and where they end up going.

Transients have a different sense of society because of their lifestyle and therefore, a different vision of how are constituted the structures and processes of communities. As Dickens (1990) pointed, social change and upheaval affect the "expressive orders" people use and their interpretations and understandings of themselves and of the social world. Simmel (1972), a very influential figure on the Chicago School of Sociology, argued that individualism and group differentiation stemmed less from macro processes and largely from individuals and small groups themselves attempting to assert personal identities.

The spatial and social mobility is crucial in the transient lifestyle. The physical segregation of big cities offers the group, and thereby the individuals who compose the group, a place and a role in the total organisation of city life. For sociological purposes a city may be defined as a relatively large, dense and permanent settlement of socially heterogeneous individuals (Wirth, 1938). The central objective of Wirth´s studies was to establish the kinds of actions and organisations that people typically make for themselves in this kind of social and spatial environment. Wirth argues that a distinct kind of urban personality emerges in the new city; distinguished by competition, aggrandisement and mutual exploitation. According to Ernest Burgess´s Concentric Zone Theory, cities grow and develop in concentric circles, i.e. continuous processes of invasion of land, resources, power and so on. In case of transients, mobilization occurs towards cities that have social resources that they could make use of.

Regarding to association, the core of social mechanism is “honour” or “Esteem” (Davis, 1960). Honour is a means of classifying and understanding people. It informs the whole of local social life including peoples performance in their social role. Honour is, Davis argues, the basis of association, of forming alliances for all purposes from the day-to-day to the long term. Reputation, in individuals eyes, and in those of the surrounding locality, is therefore the prime issue of everyday life and conversation. This could explain why transient people reject to be categorised as homeless and even to go to the same places as homeless do, since they do not want to be identified with them by the rest of the population.

Pahl and Saunders (1984) stated that another central reason of concentrating on civil society lies in the social and emotional significance of the home. Transients reject to be called homeless but self-define themselves as houseless. Pahl, in Divisions of Labour (1984), argues strongly that a rapidly decreasing proportion of the population is in full-time, paid employment. To an increasing extent, people´s lives, interests and identity are focused on relations outside the workplace. More specifically, they are focused on the home, with self-provisioning representing a sphere of autonomy where they could literally “be themselves”. Transients generally do not have their self place (except those who travel in vans or cars) but they adopt that lifestyle because of wanderlust or the feeling of freedom. For transients home ownership does have an embourgoisement effect. Clearly, the homes and household objects that people adopt for purposes of personal and social identity frequently change their nature, and as new social groups arise and develop a stronger identity, also does their way of perceiving the ontological security a home provides.

4. HYPOTHESIS

The aim of this study is providing a deeper understanding of the transient population of Fort Collins and the problems generated by transients in the town. Transiency might seem a phenomenon which is generated exogenously of Fort Collins. However, as John Sterman affirmed in 2002, people tend to fail to recognize the feedbacks in which we are embedded and the way in which we shape the situation. The problem in this system is not transiency by itself, but the increase of the inflow of transients in Fort Collins and in consequence, the problems they generate to the town. The main hypothesis of this thesis is that the relative attractiveness of Fort Collins is higher for transients than the surrounding areas due to different factors like the availability of different social services, the opportunity of getting money from the town or non transient population, recommendations from other transients (word of mouth), a positive impression of the town and the good ambience of the city in relation with transients and so on. In consequence, this relative attractiveness causes the increase of the transient population. Furthermore, once transients are in the town, since the internal conditions are very pleasant, they enlarge their stay and produce more expenses to the town. Since that relative attractiveness is generated by Fort Collins, this works assumes that the behaviour of the transient population over time arises from endogenous sources (within the city) rather than from exogenous sources (imposed on the city from outside sources). As Sterman stated (2002), almost nothing is exogenous. Human activity and its decisions could modify through different actions almost everything. However, people are unaware of the majority of the feedback effects of their actions.

Attesting that the problem is generated endogenously does not mean that Fort Collins is guilty or responsible of the problems caused by the transients. Nonetheless, it can not be ignored the fact that if transients were not attracted by the town, the problems created by the transients would never produce.

This hypothesis is based on Jay W. Forrester´s theories about the attractiveness principle of geographical areas (1969). The term attractiveness is used to describe the variable that modulates the flow of people to and from an urban area. Attractiveness is perceived in different ways by different people and its components are weighted differently. The theory of urban dynamics (Forrester, 1969) was developed in the belief that the key to improving a city lies not only in isolating its many problems but also in identifying the network of connections that exist between

those problems. The attractiveness principle and how it affects transient population and the orientation toward problem interconnections combine to form the basis of this study.

Continual migration flows are an essential feature of our society. Forrester´s studies indicate that the rate of immigration to an urban area depends on both the size of the area´s current population and the internal conditions of the area. Areas with larger populations dominate both news media and word of mouth communications. People can more often find whatever they are looking for in a larger city. Moreover, the larger an urban area´s population, the more likely a person is to have friends and relatives there who can pass along information about opportunities within the area and help arrange for trips, housing, jobs and social life. People (non-transient and transient) move into and out of an urban area in response to the attractiveness of the area for migration, influenced by many different components as the job market, housing conditions, climate... Nonetheless, basic needs for food, clothing and shelter are paramount, so the available shelter stock and social opportunities in large measure determine if transients will be attracted to the area. Immigration increases an area´s population and this increase in turn generates more immigration. However, in the case of transient population, an increase of the transient immigration rate would produce more transient immigration but due to the problems that they generate within the community, in the long run it could also produce a decrease of the the normal (non-transient) immigration rate. In she short run the effects of the problems generated by transients are disconformity by town citizens and a negative perception of the town. For instance, in a survey developed by the the local newspaper The Coloradoan, 30% of the interviewed people answered that avoid going to downtown due to panhandlers[13].

Over time, changes in urban conditions will change people´s perceptions of the attractiveness of an area and migration rates will respond to these perceived changes. An important feedback loop connects the attractiveness of Fort Collins, the flows of people into and out of the town in response to its relative attractiveness, and the population movements that change the city´s internal conditions and its attractiveness. Some time lags are inherent in the perception of changing urban conditions.

Fort Collins has experienced a increase in the transient population in the last years. All the concerns regarding transients are creating a negative perceived attractiveness of the town and it could eventually affect the non-transient migration rates. As a matter of fact, a increase in the number of

[13] "Tourists, Transients Change Old Town Perceptions". *Coloradoan*. N.p., 2017. Web. 20 May 2017.

transients affects the shelter and social services availability, and leads to a increment of the perceived attractiveness related with crime, which affects to the overall relative attractiveness of Fort Collins, which on last instance influences on the flux of immigration. This feedback loops shows that even with inherent lags in the system, a increase of transient population could lead to a decrease of immigration. Additionally, the transient derived crimes create a negative perception of the town, which could lead to even more disconformity. The apparent attractiveness of every location is a function of how many people are already there. If one urban area is very attractive compared with its environment, immigration will be very large, and the local population will grow. If the area is very unattractive in comparison with its environment, immigration will be very small, and the relatively larger outmigration rate could soon reduce the population (Alfeld and Graham, 1976).

Last, this thesis assumes that through reducing the attractiveness of the city, transient growth can be reduced. This means that despite transiency is generated outside Fort Collins, since transients come to the city due to its relative attractiveness, the problem is generated endogenously and therefore, it can be addressed from inside. According to Jay Forrester's Attractiveness Principle (1969) there's only one way to control growth; control attractiveness.

5. MODEL ANALYSIS

An urban area is a system of interacting industries, housing, and people. Under favourable conditions the interplay between the parts of a new area cause it to develop. But as the area evolves and its land area fills, there are developed some processes that cause stagnation. As the urban area moves from the growth phase to the equilibrium phase, the population mix and the economic activity change (Forrester, 1969). As the different groups of the population grows, the demand of different services and facilities grows as well. Unless there is continuing renewal, this demand will never get satisfied. On the other side, if renewal is produced, demand will keep growing and will lead to a vicious cycle of exponential growth .

As Forrested pointed, renewal is necessary to keep a healthy environment in an urban area. However, the interactions between economic and social activity are very complex and the mere intuition is not enough to predict what is going to happen in the urban context. Some time lags are inherent in the perception of changing urban conditions. New social opportunities today do not necessarily bring new transients tomorrow. Over time, however, changes in urban conditions will change people´s perceptions of the attractiveness of the area. Transient migration rates will respond to this perceived changes and therefore, increase transient immigration. In consequence to this response, non-transient population migration rates can be affected too due to a decrease of the relative attractiveness of the area for them. The apparent attractiveness of Fort Collins, as of every location, is a function of how many people are already there. People attempt to increase their own well-being by moving to the los attractive location. Once there, their presence could increase or decrease the attractiveness for the in-migrants to follow.

The Fort Collins model tries to illustrate what is the effect of the transient population in the urban context and build a strategy to improve the “natural development” of this population group. “Natural development” refers to the path of future performance of the number of transients over time in Fort Collins. According to Kim Warren (2008), the time path of future performance is central to the concerns of investors in commercial firms, as well as to stakeholders in public policy. There are three distinct, but related questions lying behind the issue of how organisations perform through time; why, where and how.

Applied to Fort Collins, the question “why” refers to the historical performance of the transient population. The history is highly relevant to the likely trajectory of future performance, and

without applying a policy to change that performance, the historical behaviour could show us "where" will the path of future performance take us if we carry on as we are. The last question, "how", is the most important regarding policy making. "How" is implicit in the sentence "how could we improve that future performance?". In Fort Collins the answers to this third question focus on slowing the growth of the transient population and even reducing it, while not risking damage to the city´s reputation in the eyes of non-transient population.

The data that compose the Reference Mode is an estimated number of the annual transients of Fort Collins based on qualitative judgments and quantitative data like complains regarding transients (which increased more than 50 percent from 2015 to 2016[14]), number of inmates of Larimer County Jail (144 inmates identified as homeless or transient, representing 25 percent of the jail population, during April 2016), declarations from Sheriff Justin Smith who told commissioners that the number of inmates identified as homeless has increased by 123 percent from 2011 to 2015, and different ranks on crime, homelessness and panhandling growth.

TIME	Historical Development of Transient Population
2012	244
2013	250
2014	289
2015	315

Table 1: Reference mode of Stock of Transient Population in Fort Collins (Estimated Data/Source: The Coloradoan and Larimer County Jail)

Moreover, the numbers that compound the Reference mode are proportionally similar to the behaviour over time of the number of homeless of Fort Collins. The first reason is because of the difficulties faced by the authorities to identify who is homeless and who is transient and the second one is that, as Sheriff Justin Smith affirmed, "The ones we are dealing with are not simply homeless people, they are criminals who move here without anywhere to live", which implies that although the most crimes are produced by transients, they are identified as homeless in the majority of the cases.

In Figure 4 it can be observed the development of the reference mode and the behaviour of the *Transient Population of Fort Collins* generated by the model. The behaviour of the Transient Population of Fort Collins generated by the model is shaped by many variables, parameters and

[14] "Concerns Regarding Transients Hit Fever Pitch In Fort Collins". *Coloradoan*. N.p., 2016. Web. 20 May 2016.

feedback processes. In the reference mode, between 2012 to 2013 the number of transient population remains fairly static. From 2013 and until 2014, transient population increases gently and after 2014, it is experienced an increase that lasts until the present. On the other hand, the behaviour generated by the model does not produce any fluctuation, and shows a gradual growth of the number of transients in Fort Collins over time. Despite the forecast of the exact growth rate is unpredictable, replicating the reference mode gets the modeling process a step closer to estimate the behavior of the system, and therefore, understand and halt the problem.

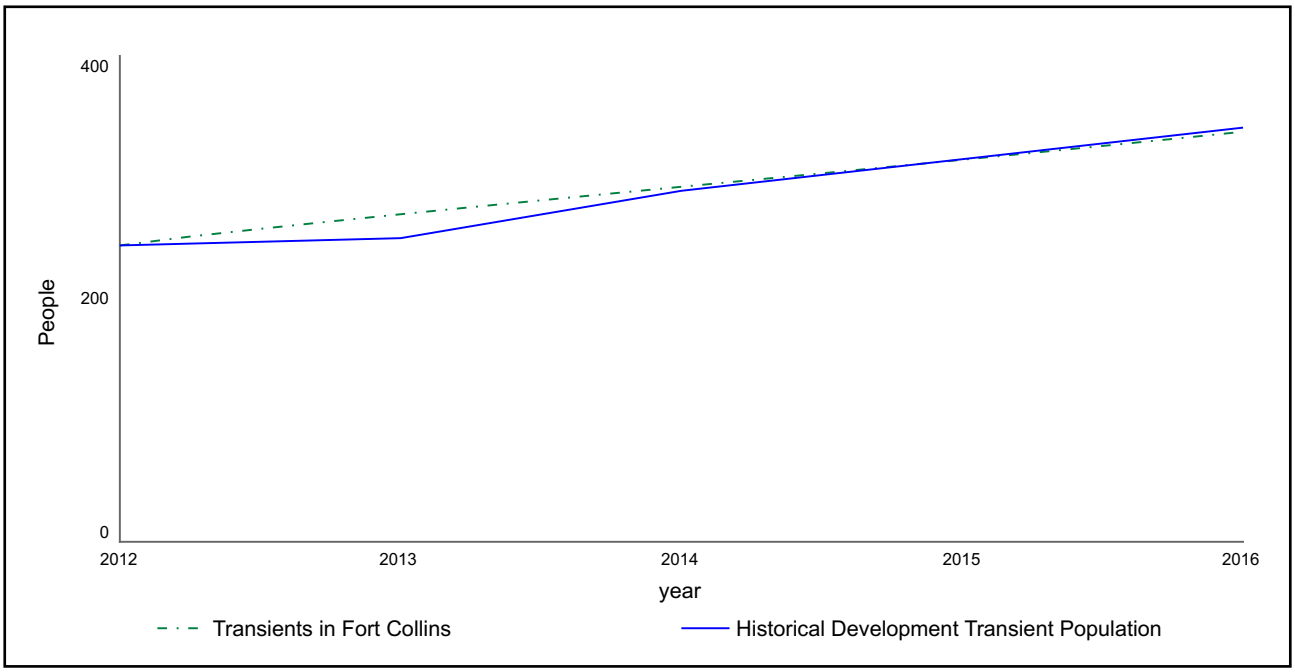

Figure 4: Reference Mode versus Transient Population Development generated by the model

5.1 THE FORT COLLINS MODEL

The theory (model) of transient population behaviour presented in this thesis is composed by many sectors which communicate between each other and affect their conditions. Those conditions change as it does the relative attractiveness of the area , which rises and falls with respect to the movement of the population (transient and non-transient). This model wants to explain the growth of transient population and indicate how the increase of transient population could affect many other sectors of the society; non-transient population, local homeless who are not transients, resources and assistance provided to transient population and homeless by the city, and problems associated with the transient population.

The attractiveness of the area, compared to its environment, depends on the conditions and activities within it (Forrester, 1969). Fort Collins has been rated as No. 4 Community in Overall Well-Being, 2014-2015 by Gallup Healthways, No. 4 Happiest City in America by 24/7 Wall St., Best Recreational/Travel Map Design by Cartography and Geographic Information Society (2016), No. 8 Best-Performing City by Milken Institute (2016), No. 2 Best Cities for Small Business Owners by ValuePenguin (2017), and No. 9 Top 150 Cities for Millennials Report by Millennial Personal Finance (2017), between many others. This awards are just indicators of the many benefits of the town, which can be enjoyed by anybody who visits it. Thus, it is assumed that the relative attractiveness of this area is higher than the surrounding ones for any population group. This relative attractiveness is therefore, the reason why transients decide to go to Fort Collins. However, as explained in the following pages, the relative attractiveness of Fort Collins for non transient population is different than the relative attractiveness for transient population.

5.1.1 WORD OF MOUTH EFFECT

Some transients travel to Fort Collins encouraged or supported by family members or friends. Others, are attracted to the town´s good publicity on the internet, forums or any kind of networking sites. In the past few years, social networking sites have become extremely popular on the Internet. According to comScore Media Metrix (2006), every second Internet user in the United States has visited at least one of the top 15 social networking sites. Approximately 50 social networking Web sites each have more than one million registered users, and several dozen smaller, though significant, sites also exist (e.g., Wikipedia 2008). Typical social networking sites allow a user to build and maintain a network of friends for social or professional interaction (Trusov and Bucklin, 2009).

Americans today have exceptional mobility. Because few barriers prevent movement from one city to another, a city´s services, housing or shelters could become crowded only in a city that offers compensating advantages to hold city residents or attract migrants. Unless a city has good services, clean air, plentiful jobs, or other desirable qualities, people may refuse to accept the crowded system and move out of the city. Therefore, crowded services, housing or shelters are not morally evil by itself. A city with clean air, good jobs, excellent services, and available housing/shelters would soon be inundated by in-migrants. Before long, such a city would have crowded services, dirtier air, and scarcer jobs and opportunities.

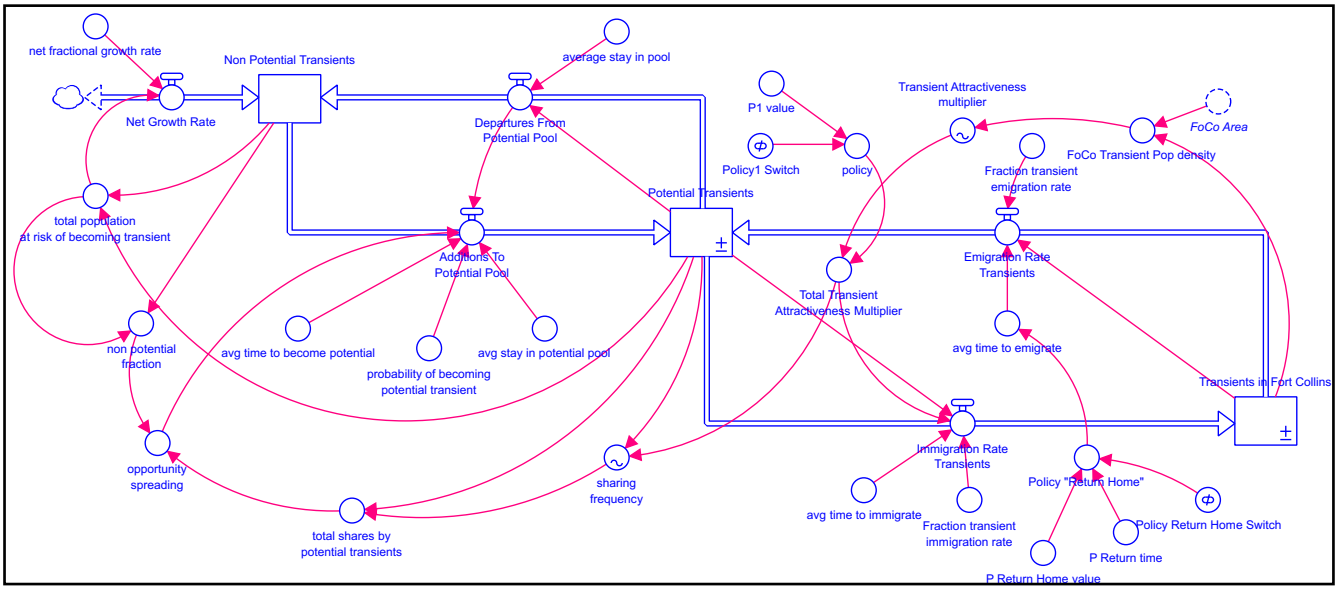

Figure 5: Word of Mouth Effect Sector of the Fort Collins Model

In this model there is included a “Word of Mouth Effect” sector, where is represented how works this effect within the transient population. This process works in a similar way than diffusion of new products or epidemics. Simplified, in epidemics are founded two categories; susceptible to the disease and infected. As people are infected they move from the susceptible category to the infectious category. The disease spreads as those who are infectious come into contact with and pass the disease to those who are susceptible, increasing the infectious population still further while at the same time depleting the pool of susceptible population. People in the community interact at a certain rate. Thus the susceptible population generate encounters per time period, some of these encounters are with infectious people. Not every encounter with an infectious person results in

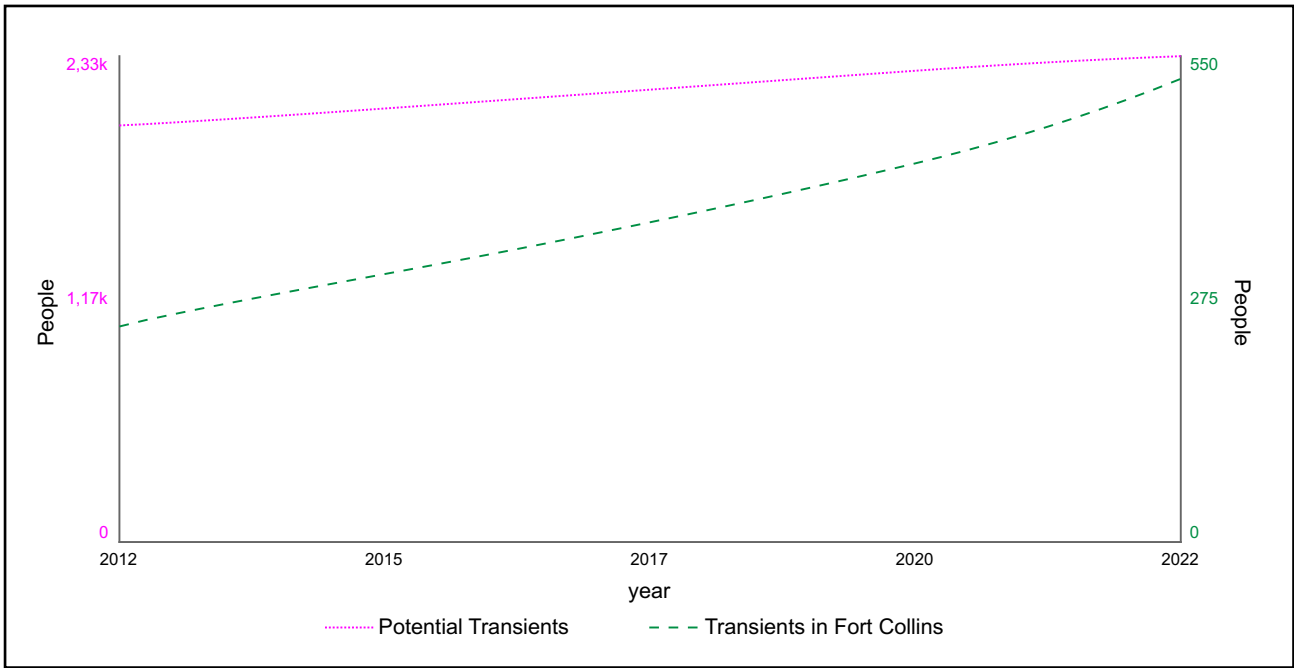

Figure 6: Potential Transients development versus Transients in Fort Collins (Simulation Results)

infection. The infectivity of the disease is the probability that a person becomes infected after contact with an infectious person. Similarly, in this model the susceptible are the “non potential transients” and the infectious, the “potential transients”. The idea of becoming transient is spread from the potential transients to the non potential. There are many assumptions involved; the probability of being convinced of becoming transient is very low (0,2%) and the time required to take this decision is 1 year. The non potential pool is composed by thousands of people. Thus the potential transient pool keeps growing over time.

Since this thesis focuses on the transient population of Fort Collins, it is represented how transients move from the stock of “potential transients” to “transients in Fort Collins” and viceversa (transient population who travel to other cities are out of the boundaries). In Fort Collins, the cumulative number of cases follows a very smooth S-shaped curve while the rate at which new cases occur rises exponentially, peaks, then falls as the epidemic ends. In this model, the S-shape curve doesn't end with a stabilisation of transient population. It is assumed that the Pool of non potential transients is composed by thousands of people who could at some point of their lives become transient. Therefore, the number of transients keeps growing decreasingly after the previous exponential growth.

There is a negative feedback loop between the *transient population of Fort Collins* and the *Total Relative Attractiveness* of the city. As immigration increases and population grows, it increases as well the amount of people becoming at risk of poverty. This poverty needs to be addressed and the poor population get help through social services. As poverty grows, it also does the demand of social services, which are used by both local homeless and transient homeless. Transient population interact and communicate information about those services to other transients, which leads to an increase of the relative attractiveness of Fort Collins for transient population. As transient population grows, it also does the amount of crimes produced by them and the negative perception of the town increases (due to those crimes), causing a decrease of the relative attractiveness for non transient population and reducing on last instance, the immigration flow of non transient population to Fort Collins. In addition, inside this process, there is a positive feedback loop between *Transient Population* and the *Total Relative Attractiveness perceived by transients*. As the number of transients increase, it also does the amount of people using the social services offered by the town. These services get more and more publicised between transient networks, making the total transient attractiveness grow and in response, increasing the *Transient Immigration Rate*. The *Total Transient Attractiveness* is a multiplier compounded by the *Transient Attractiveness Multiplier* and the *Attractiveness of Sheltering Multiplier*. In this thesis, the *attractiveness in sheltering*

multiplier refers to the relative attractiveness perceived by transient population of the sum of available social services offered by Fort Collins (not just shelters), while the *Transient Attractiveness Multiplier* is the relative attractiveness of Fort Collins for transients built by the positive perception of the town that share other transients through diverse social networks.

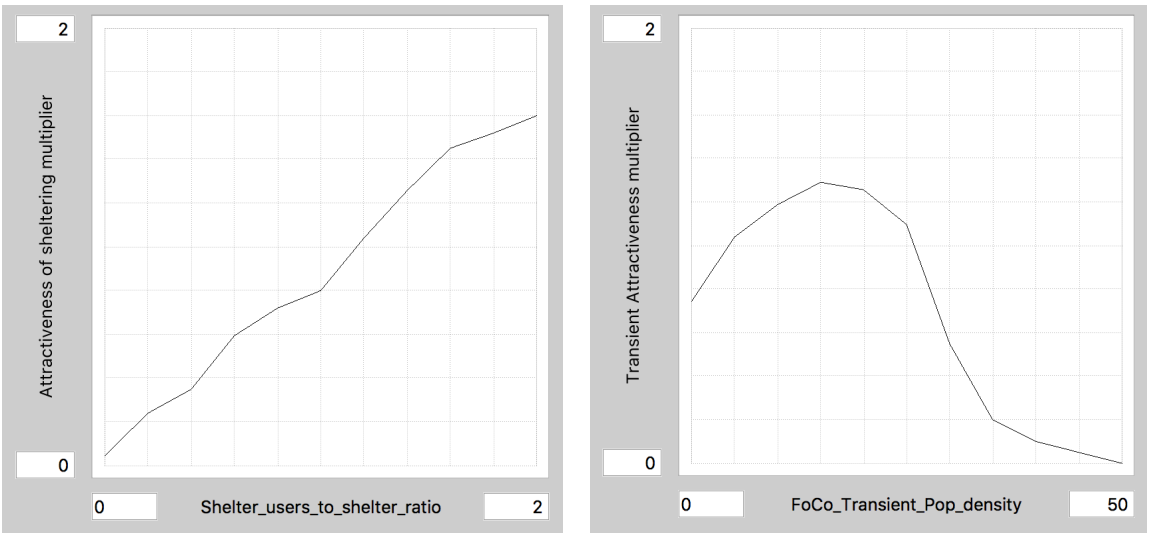

Figure 7: Graphical Functions of Attractiveness of Sheltering Multiplier and Transient Attractiveness Multiplier

The *Attractiveness of Sheltering Multiplier* assumes that as the number of transients that get access to social services grow, the more transients are attracted to Fort Collins to use those social services. Vagrants do not aim to settle in the city for a long time; they look for places where their stay can be pleasant and they can find accessibility to relevant services or facilities. Transient and non transient population are not attracted to the same things and do not take the same risks when choosing a location. First, transient population do not make any investment when going to a place, more than transportation expenses. When they are in the city, they do not take any laboral or economical risks and their choice (Fort Collins in this case), is not a long term decision, since they leave after some weeks. They go to the city attracted to some benefits that they can not find almost anywhere else (legal marihuana, social benefits given to homeless population, friendly environment and so on) and encouraged by other transients that have a positive opinion about the town. Since they do not take any risk-benefit based decision, and the profit they could get from Fort Collins is relatively more influential than any negative aspect (e.g. crowded social services) this thesis considers that the more transients have accessibility to those services, the more people will get to know about them, and in consequence, the more transients will get attracted and come to Fort Collins.

On the other side, the *Transient Attractiveness Multiplier* considers that relative transient attractiveness grows with low population densities and gradually reverses its rise and begins to fall

as the area gets a high transient population density. This is caused because at certain point, the amount of transient population in the city creates an unpleasant environment and causes social discontent of the local population with transients.

The *Total Attractiveness Multiplier,* compounded by he *Transient Attractiveness Multiplier* and the *Attractiveness of Sheltering Multiplier,* also affects the *sharing frequency* of information about Fort Collins between the transients. As the *sharing frequency* increases (see Fig. 8), there are more additions to the pool of *Potential transients*. In consequence, the *transient immigration rate* increases and it also does the stock of transients in Fort Collins. The situation of transients in the town attracts more transients and the relative *Total Transient Attractiveness* grows in response to it. Lastly, there is also a minor reinforcing loop between the additions to the potential pool of transients and the Potential Transients. This means that the more Potential Transients, the more additions to the potential pool, and vice versa.

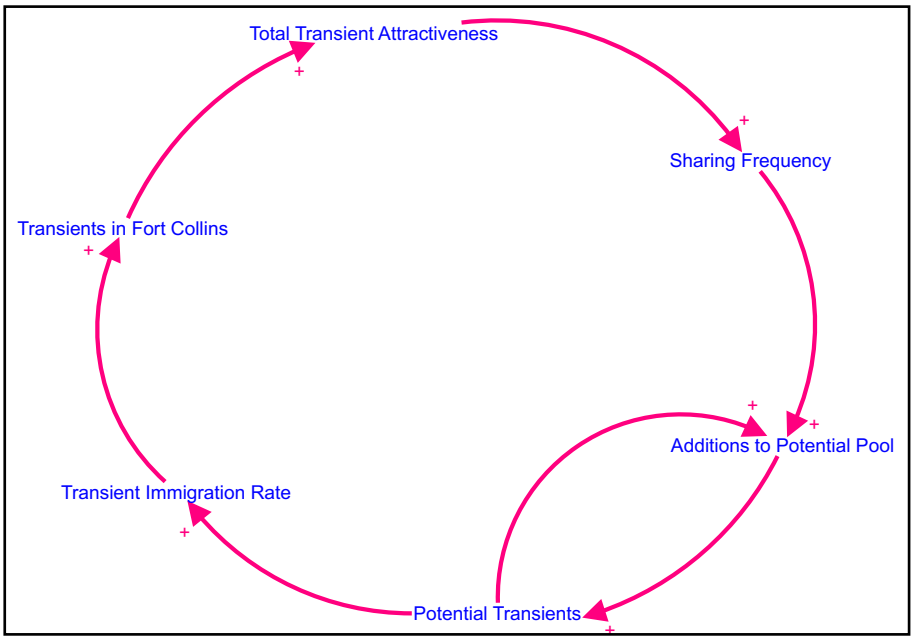

Figure 8: Reinforcing feedback loop between Transient Attractiveness and transient mobility

5.1.2 SHELTER SECTOR

One of the reasons why transients choose Fort Collins as destination is because of the good quality of the social services and the opportunity of getting advantage of them. Therefore, in the model it is assumed that an increase of the number of transients would lead to an increase of the demand of social services. In fact, this demand increase has lead to fill the capacity of services like

shelters in Fort Collins[15]. The lack of *shelter availability* during some periods along with a growing homeless and transient population, pressures the town to construct new centres[16].

As showed in Figure 9, an increase of the number of transients would produce a decrease of the *shelter availability* and increase the pressure to construct new spaces. A large population forces more people to compete for the resources of the area. If this resources expand with the population, then the population could keep growing. In other words, if the available resources for transients expand when the transient population increases, then the transient population will keep increasing. This reinforcing loop shows how the same situation will arise again and again. The only way of stopping it not expanding the capacity of the resources.

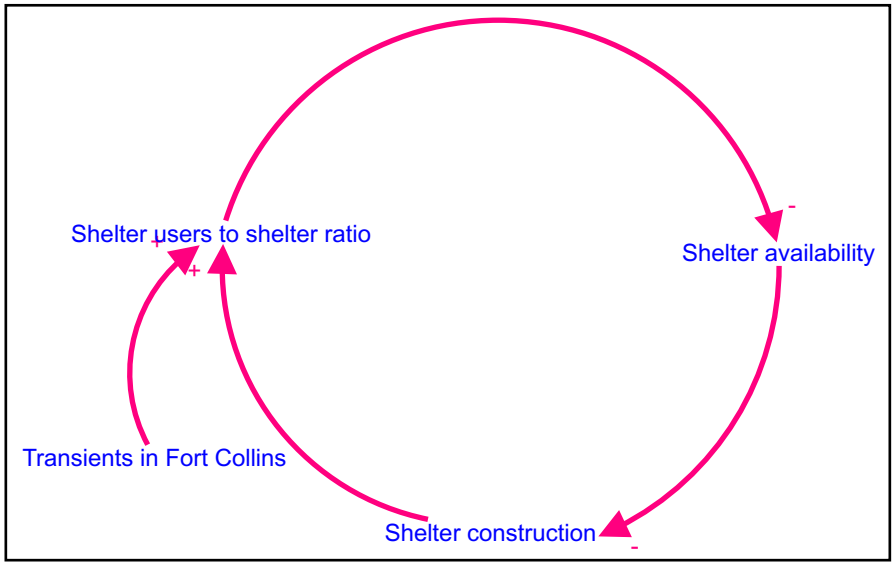

Figure 9: Reinforcing loop of capacity expansion and increase of demand

Shelter availability is one of the main variables that modulate migration into and out of Fort Collins. Despite it is true that not all the transients make use of shelters, most of them do. The *shelter availability* is one of the social services that require more investment from the government and a place with high shelter availability could be understood as a place with high social investment. This assumption means that even those who would not make use of shelters, they could be highly attracted of Fort Collins because of the other available social services. Therefore, in this model the term *shelter availability* very broadly denotes not only the vacancy rate in the aggregate shelter stock but also such other concomitants of the shelter supply as diversity of choice in size and location, and quality of services. *Shelter availability* could also be one of the factor a person must weight in deciding whether or not to go to a given area. Both word of mouth, media and in the last

[15] "Homeless In Fort Collins Outnumber Shelter Beds". *Coloradoan*. N.p., 2014. Web. 7 Jan. 2017.

[16] "New Fort Collins Homeless Shelter Unlikely". *Coloradoan*. N.p., 2015. Web. 7 Jan. 2017.

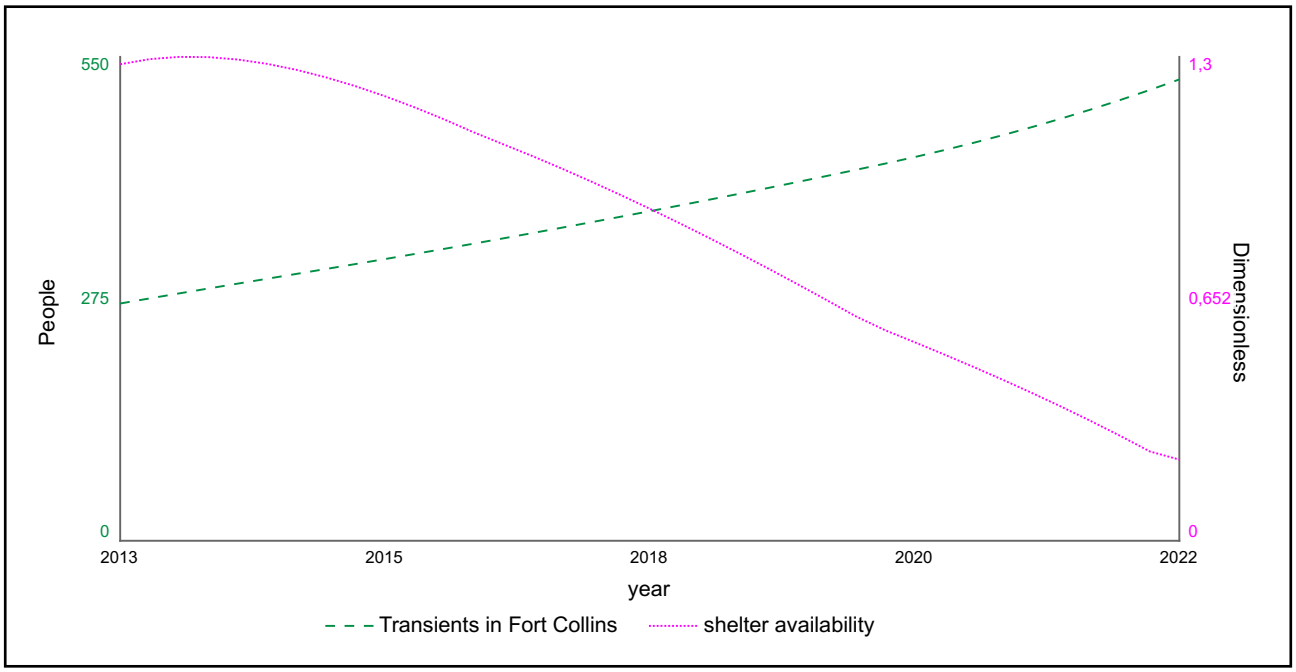

Figure 10: Increase of Transient Population versus decrease in shelter availability (Simulation results)

years, internet, publicise the state of shelter availability in many different areas. Prospective transient immigrants may be discouraged by poor prospects of finding an acceptable service or by the possible situation of finding a place less desirable than the one they are already in. Low overall *shelter availability* should therefore reduce the rate of immigration. On the other hand, if inexpensive (or free) services in a pleasant location as Fort Collins are readily available, people may be willing to accept other undesirable features of the area - such as social displeasure or conflicts with other people - and go there. High overall *shelter availability* stimulates transient immigration. Abundantly available *shelter availability* stimulates a heavy flow of immigration, which in turn raises the area´s transient population. Immigrants occupy some of the excess shelter spaces, making the shelters less available. This increase in population pressures the town´s shelter capacity and at some point, influences more shelter construction. Eventually, as the shelters age and are demolished, the number of shelters declines, which in turn reduces the availability of shelters. This last scenario could produce a bigger stress in the shelter availability because of the continuous increase in both homeless and transient population, forcing even more to shelter construction and consequently, to a higher government expenditure.

The *attractiveness of shelter multiplier* (Figure 11) stimulates or inhibits immigration according to shelter availability, which is reflected by the value of the *shelter users to shelter ratio.* When the *shelter users to shelter ratio* is above 1, corresponds to conditions of very low social services availability (See Figure 12). In the model called POPHOU developed by Jay Forrester in his studies of Urban Dynamics (1969), when the attractiveness of housing multiplier was above 1, it meant not just low housing availability but also few people moving into the area, either because

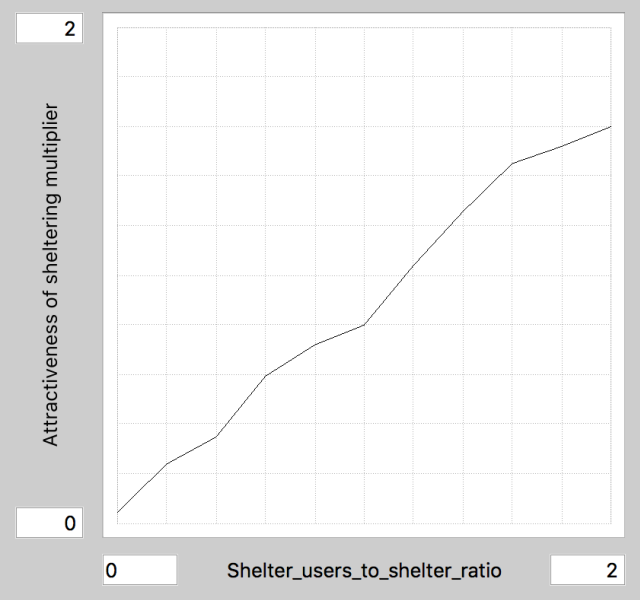

Figure 11: Attractiveness of Sheltering Multiplier

they actually try but are unable to immigrate or because the housing shortage makes the potential immigrants perceive the area as an unattractive location (Forrester, 1969). In the case of transients, a low availability could make the area less attractive but not enough unattractive to reduce or stop the immigration rate. The graphical function of the *attractiveness of shelter multiplier* assumes that the more transient are allowed to use the social services, the more grows the relative attractiveness of this social services.

The *shelter construction multiplier* represents two influences; the availability of land and the condition of the housing/shelter market. This variable inhibits the rate of shelter or housing construction when the land fraction occupied (land area occupied by structures divided by the total land area) is low. The rate of shelter construction in response to the demand is modulated by the *shelter availability* variable. The *shelter availability* variable is a function of the *shelter users to shelter ratio,* which represents the amount of people using an aggregate of variables that respond to

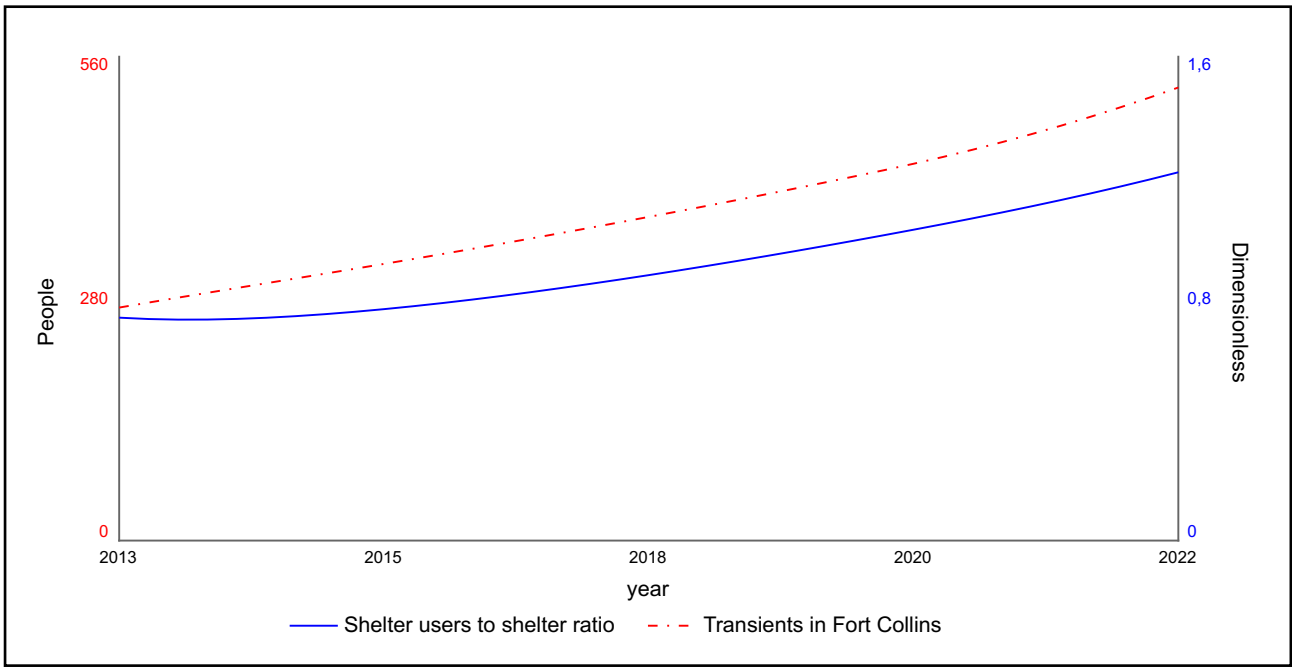

Figure 12: Increase of Transient Population and rise of "*shelter users to shelter ratio*" (Simulation Results)

the shelter conditions, including location, vacancy, crowding, services and requirements, between others. Since transient population makes use of the social services offered by the town, as transient immigration grows, those services get more and more crowded, and raise the *shelter users to shelter ratio*.

Shelter size is the average number of people who would occupy a shelter under normal conditions of shelter availability. The number of people is equal to the number of available beds. The *shelter users to shelter ratio* is used (as an input to multipliers) to indicate when shelter availability differs from shelter availability during the normal period (crowded versus non-crowded). This model assumes that migration into a city is sensitive to the local *shelter users to shelter ratio.* This is however only an assumption based on the fact that transients are persuaded by other transients to travel to determined places based on services and conditions that a place could offer. Hence, the more transient population get access to determined services, the more people is going to communicate information about those services and conditions to other transients. Transient migration must conform to the capacity of the living space in an area. As the density of the shelter occupation of Fort Collins increases, the shelter availability decreases. And when the shelters become less available, the pressure against transient immigration intensifies.

In this project it is assumed that in a given point of time, if there is a high pressure on the shelter system due to the increasing number of homeless and transient population, it would be needed to increase the construction rate to expand the city´s shelter capacity. As mentioned earlier, the term *shelter availability* very broadly denotes not only the vacancy rate in the aggregate shelter stock but also such other concomitants of the shelter supply as diversity of choice in size and location, and quality of services. This means that the high pressure mentioned in the previous paragraph could be also on the social services system. This pressure could force to an expansion of the city´s social services, which would relieve that pressure for a short period of time, but worsen the situation in the long run.

5.1.3 TRANSIENT RELATED PROBLEMS SECTOR

As the number of transients of Fort Collins increase, it also does the amount of crimes produced by them. Since Fort Collins is a small town with a low normal crime rate, the negative image about transients begins to expand very quickly between the local population. As in any other diffusion system, there are early adopters of this idea, but also people who for one reason or another do not get a negative opinion about transiency. However, this number is very low compared with

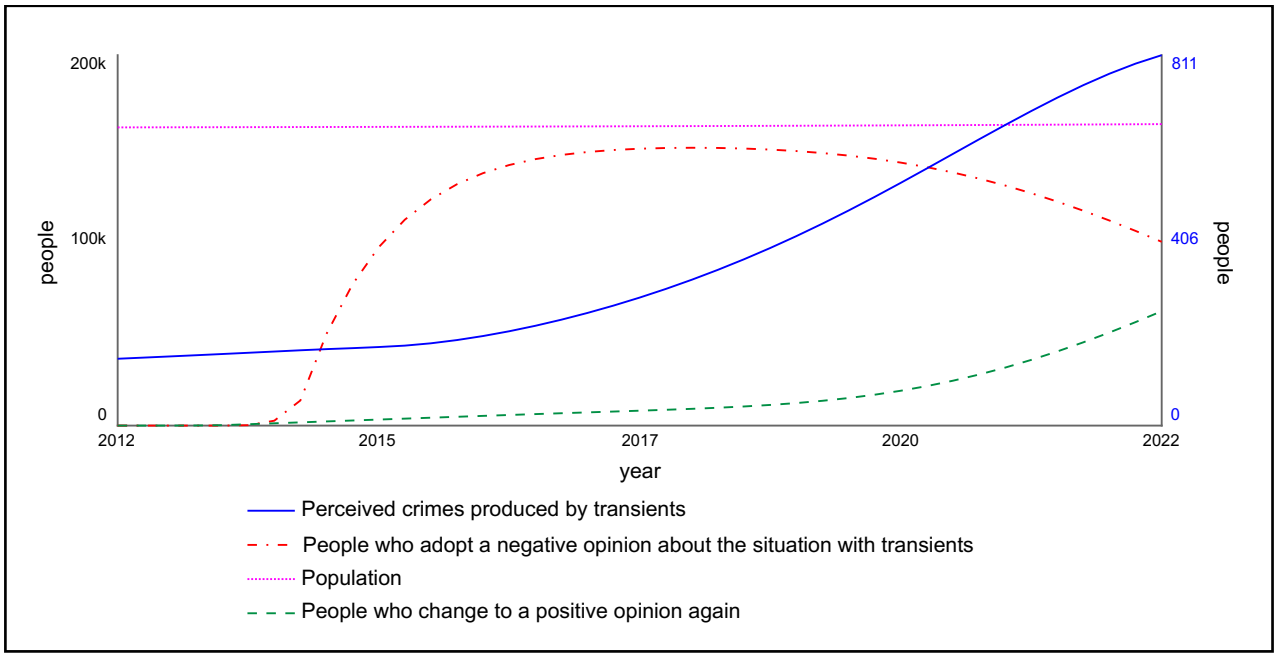

Figure 13: Population of Fort Collins and development of negative opinion about the situation with transients (Simulation Results)

the population who share a negative opinion. As showed in Figure 13, as the number of crimes produced by transient population increase, it also does the negative perception of the citizens. There is a information delay between when crimes are produced and when the negative information is diffused between the people and that is the reason why in 2014 growth shows a very steep behaviour. However, over time there is people that eventually change their opinion again (due to increase of police control between others).

Growth that feeds upon itself to produce still more growth is pervasive throughout both man-made social systems and natural systems (Collins, 1976). This is the case of the *Perceived (transient) Criminality* in Fort Collins, which behaviour arises directly from the structure of the cause and effect relationship with the number of real transient criminality rate. Figure 14 shows how the population´s perception about what is happening in the city could lead to an increase of the pressure to expand police control and police´s effectiveness in order to "solve the problem". This feedback loop also indicates that as the number of people who receive negative opinions from their friends or families increases, the general negative opinion of the citizens agains transients expands as well. This assumption is based on the concept of "Social Network Homogeneity" of Social Psychology, which concludes that people tend to be persuaded or convinced easily by their close social connections (Simon & Pettigrew, 1990).

Positive loops tend to cause divergent behaviour and in this case it could be observed how the citizen perception of crimes grows over time and pulls apart from the real number of crimes

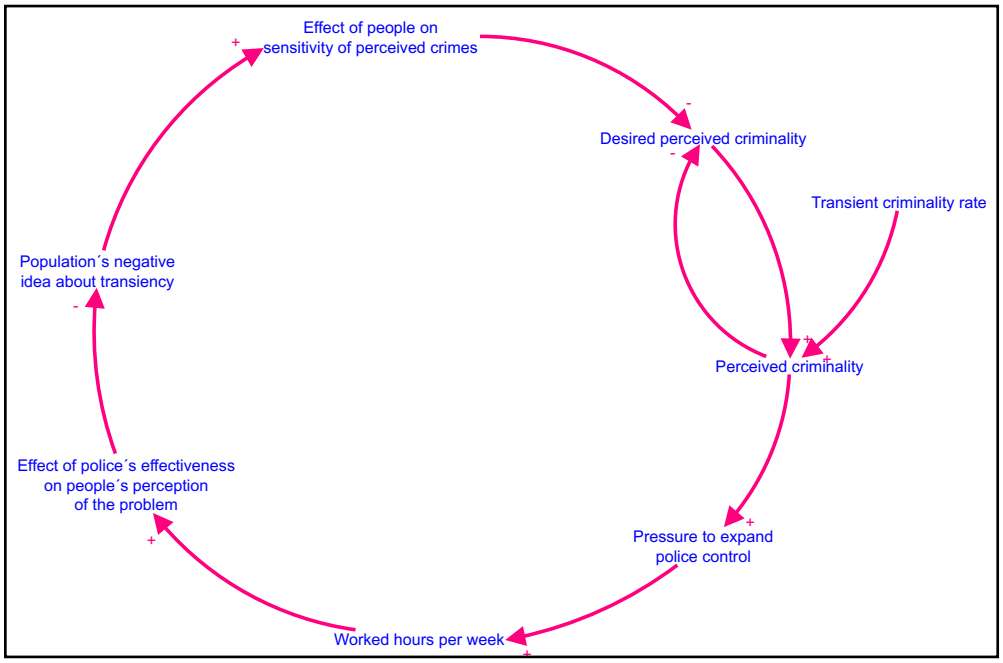

Figure 14: Feedback loop of population´s negative perception

produced by transients. As it is showed in Figure 15, the gap between the real crime rate and the perception grows over time, and despite the number of crimes does not increase so much, the simulations show that the perception gets worse and worse.

This perception adds pressure over the police department and at some point, it has as effect an increase of the working hours. This effect modulates the transient arresting rate and once transients are arrested, they go to jail or back to the streets. However, due to factors like lack of space in jail, some of them could get back to the streets before finishing the jail sentence. Transiency and crimes produced by transients (sexual assault, harassment, fights, drug use, aggressiveness against passersby, violence or unseemly behaviour, between others) have increased so much that at times, during the last 2 years, jail population has threatened to hit capacity[17]. As Larimer County Sheriff pointed, transients are filling the jail[18], reports regarding transients

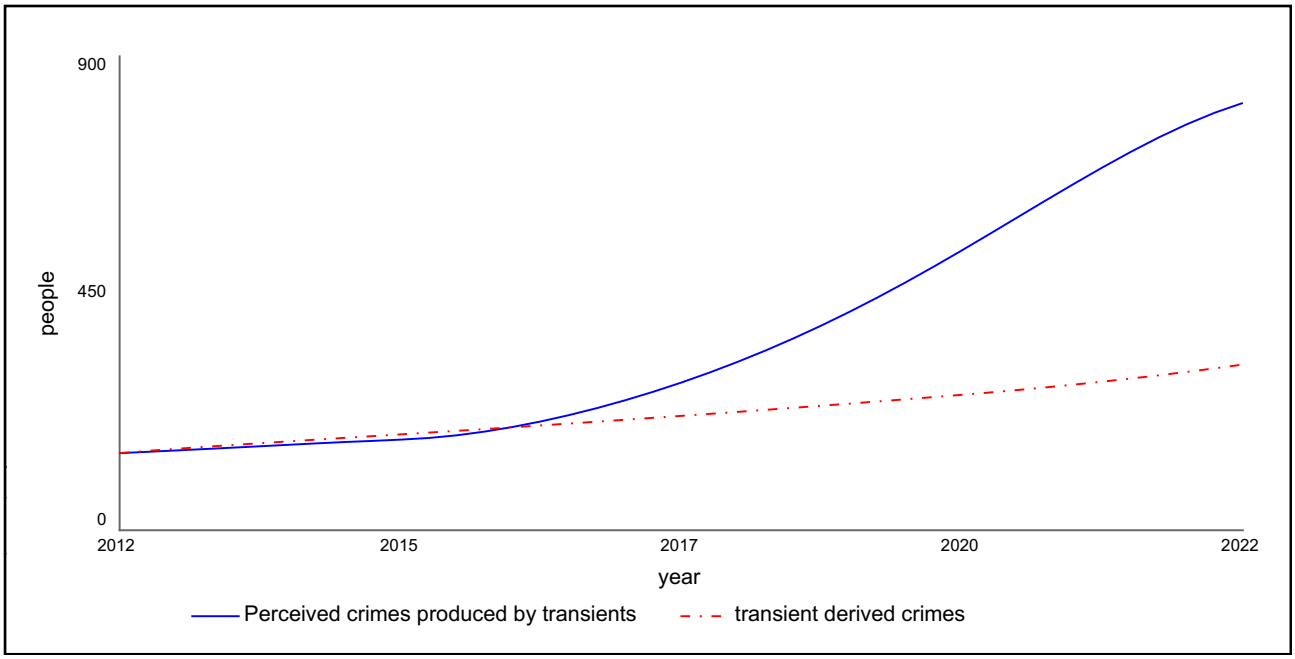

Figure 15: Number of crimes produced by transients versus perceived crimes (Simulation Results)

increased by more than 50% during 2016, and transient inmates cost Larimer County's jail $5.5 million per year.

Perception is the process by which organisms interpret and organize sensation to produce a meaningful experience of the world (Lindsay & Norman, 1977). In other words, a person is confronted with a situation and interprets it into something meaningful to him or her based on prior experiences. However, what an individual interprets or perceives may be substantially different from reality. In this sense, since Fort Collins´s citizens have experienced difficult, uncomfortable or dangerous situations with many transients for several years, they might perceive that the situation in the town regarding transients is getting alarming. This perception along with the low criminality rate of the city (39% lower than the Colorado average and 47% lower than the U.S. average), could explain why the concerns regarding transients are increasing over time and have as effect organised talks within the community trying to look for solutions.

Social perception is how an individual sees others and how others perceive an individual, in this case a transient. This is accomplished through various means such as classifying an individual based on a single characteristic or "halo effect" or judging someone on the basis of one's perception of the group to which that person belongs (stereotyping). Opposite to the halo effect is the horn effect, whereby a person evaluates another as low on many traits because of a belief that the individual is low on one trait that is assumed to be critical (Thorndike, 1920). This horn effect could explain why the general perception about transients is negative and worsens as the number of crimes increases, as observed in Figure 15.

In this model, after some years experiencing transiency without implementing any policy to stop the increase of transient population, Fort Collins will experiment a big rise in criminality too. As the social pressure will increase (See Figure 16), the police department will be forced to expand the working hours (as shown in Figure 17) of police officers and the social negative perception of town and transients could reach alarming levels.

Although it might seem that expanding police working hours and increasing police control in the city could improve the situation, the reality is that putting transient people behind bars for nonviolent crimes may temporarily keep them from disturbing the public. But it fails to address the chronic issues -- like substance abuse and mental health problems -- that will likely land them back in jail again and again. That revolving door burdens police officers, crowds local jails, costs taxpayers money and fails to help those in need.

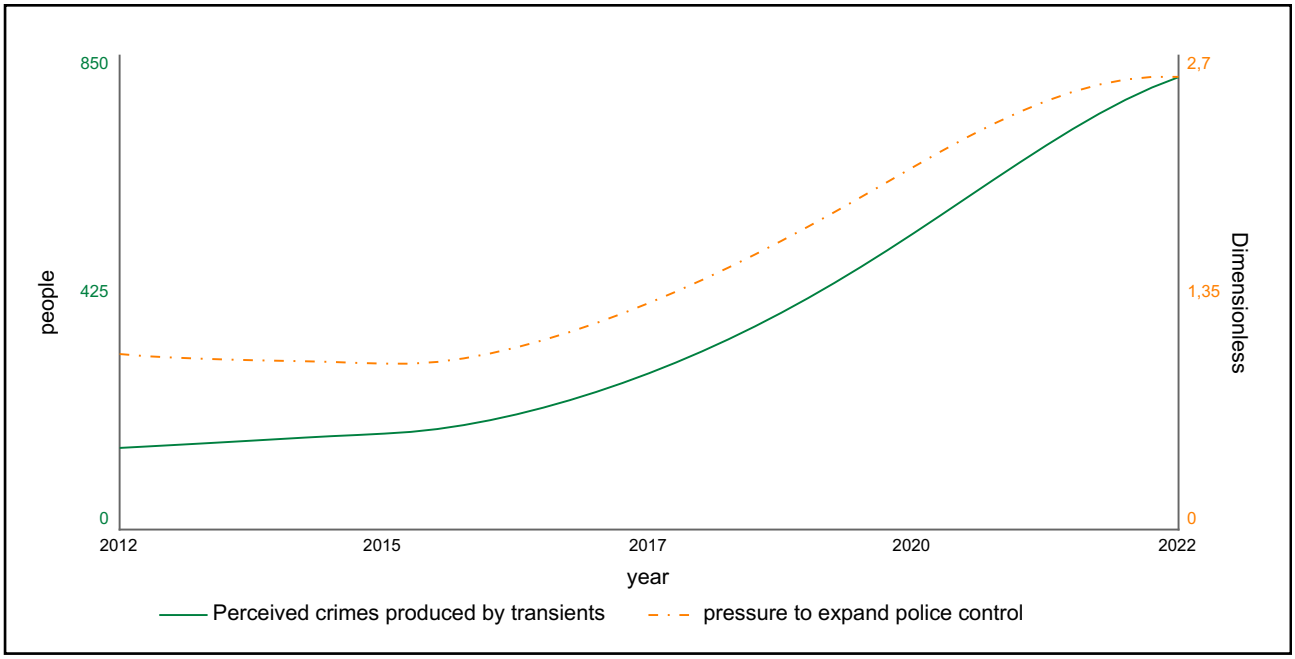

Figure 16: Increase of perceived crimes produced by transients and pressure to expand police control (Simulation Results)

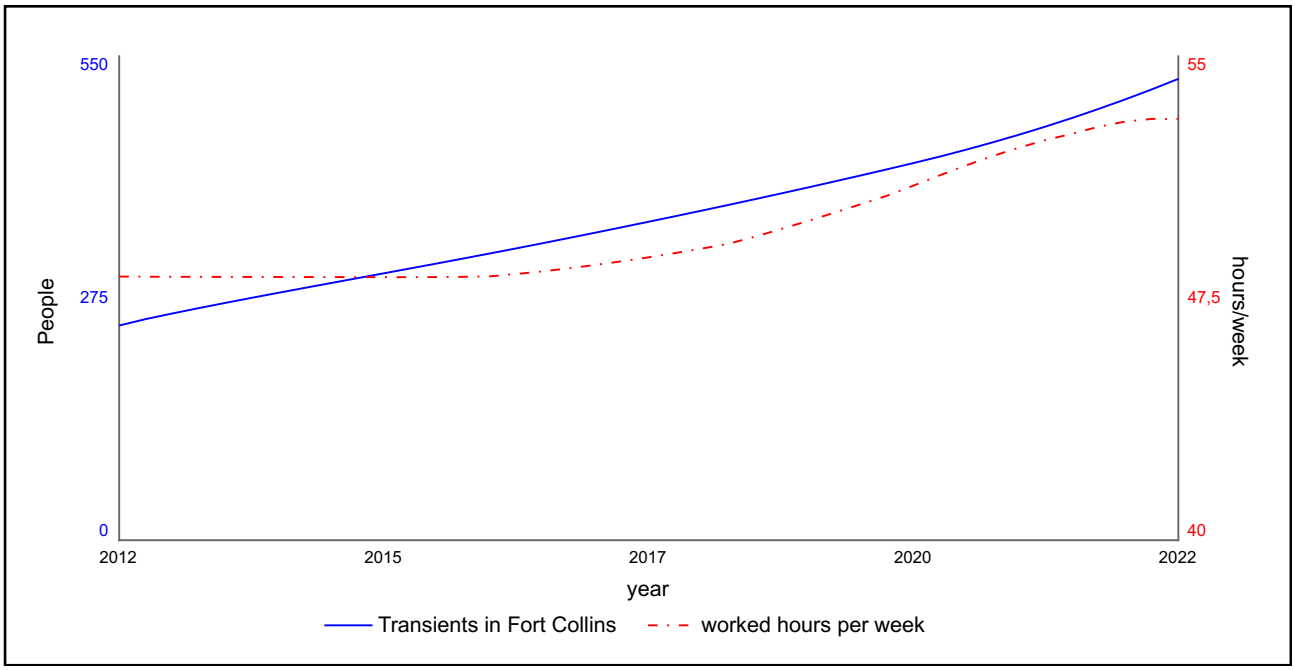

Figure 17: Increase of transients and increment of police force worked hours per week (Simulation Results)

5.1.4 FORT COLLINS POPULATION SECTOR

The Population Sector has been developed with the aim of picturing the differences between the relative attractiveness of the town for non transient population and the relative attractiveness for transient population. In addition, this sector wants to illustrate how the relative attractiveness for non transient population could be modified and affected negatively when it is produced an increase of transient population.

In this model the total population of the urban area is controlled by two types of rates: natural increase (births and deaths) and migration (in and out). The annual number of births in any urban area depends upon the size of the population and such demographic and internal conditions of the area. Moreover, the larger an urban area´s population, the more likely a person is to have friends and relatives there who can pass along information about opportunities within the area and help arrange for jobs, housing and social life. Out-migration is also proportional to population, since a larger population contains a larger number of people looking for a better job, house, climate, or some other characteristic (Alfeld and Graham, 1976).

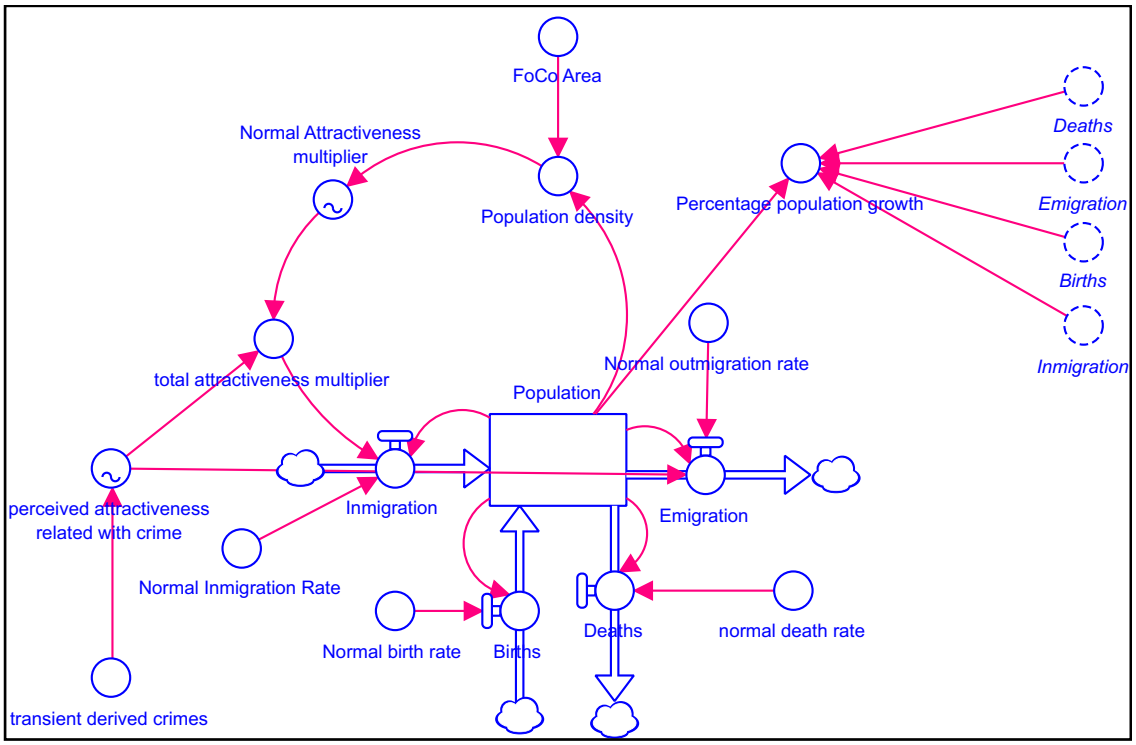

Figure 18: Population Sector of the Fort Collins Model

The magnitude of the flows are a function of conditions within the area and the population size. Attractiveness differentials modify normal flow rates according to the magnitude of the differences in attractiveness (Sweeney and Alfeld, 1975) . If the conditions are relatively better within Fort Collins than outside the area and other conditions are equally attractive, people are more likely to find out about the opportunities and move to Fort Collins. Or, if Fort Collins is hypothetically well known for the relatively high cost, low quality or difficulties for transients, people are less willing to attempt to move into the area. Similarly, the cost of living, crowding, geographical location, cultural amenities, environmental quality, and taxes all influence the relative attractiveness for migration of that area relative to the areas that constitute its environment. In this

case, being Fort Collins very attractive compared with its environment, in-migration is very large, and that produces the growth of local population.

In this model, there is a positive feedback loop between *Population*, *Attractiveness* and *Immigration*. This means that in normal conditions, where Fort Collins has job, housing and opportunity availability (as is happening in 2017), the attractiveness of the town would increase as the population does and immigration would grow in response to that.

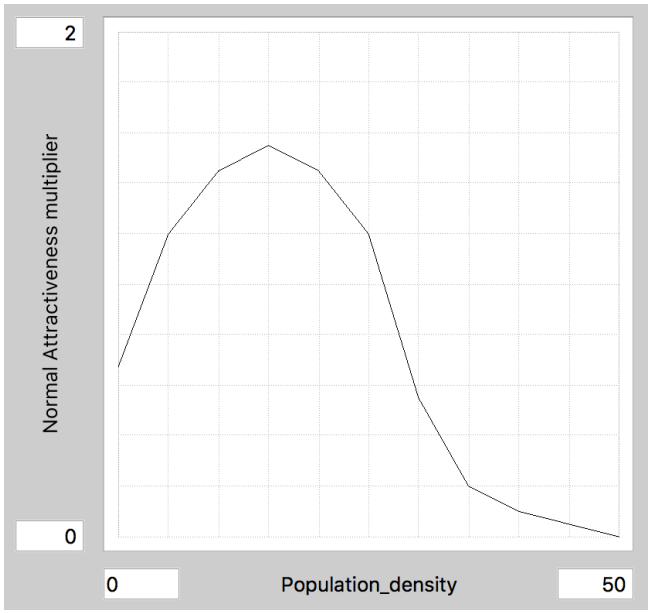

Figure 19: Graphical Function of Normal Attractiveness multiplier

The attractiveness concept mentioned between these lines, is called "*Normal Attractiveness Multiplier*" in the model, and refers to the relative attractiveness generated by the town by normal (non-transient) population. This attractiveness is displayed in the model in form of graphical function, representing the internal conditions of the area that modulate the rate of immigration. Figure 19 shows that when the population density is low but rising, the attractiveness rises too. As Forrester pointed in Urban Dynamics (1969), with low population densities, an growing population allows the area to support more services and infrastructures. As the population density increases, the *normal attractiveness multiplier* gradually reverses its rise and begins to fall. As more people enter to the area, the area´s resources become more and more strained. When housing, work and services become less available, the area becomes less attractive for further immigration.

The run specs of the Fort Collins model display the behaviour of the system between 2012 and 2022. The run begins in 2012 since it is during approximately this year when the increase of transient population began to be noticeable. The effect of transients in Fort Collins can be observed until 2017 and in this model, the suggested policy is implemented from the same year, and the effects of the policy can be observed until 2022. During this period of time, the (non-transient) population density, which is the one that modulates how will be the level of the "*Normal Attractiveness*" of the city, will always be low enough to allow growth within the city. In Fort Collins the problem is not a crowded city. In fact, the town is far away from getting crowded enough to revert the relative attractiveness. However, it was necessary including this "*Normal attractiveness multiplier*" because in the Fort Collins model it is assumed that immigration is

modulated by this "*Normal Attractiveness*" and the "*Perceived Attractiveness related with crime*". The "*Perceived Attractiveness related with crime*" represents the perceive criminality caused by transients that modulate partially the rate of immigration. The graphical function of figure 20 of this *perceived attractiveness related with crime* indicates that as the transient derived crimes grow, the negative perception rises too. The perceived attractiveness related with crime is a negative feature that affects negatively the total relative attractiveness of the town. Since the attractiveness multiplier modulates immigration, a increase of the perceived attractiveness related with crime could affect to the migration inflow in the long run. Changes in population are slow and it takes time to observe them. There is a lag in the receipt and assimilation of information and responsiveness to such information. Out-migration does not increase in the same proportions that in-migration shrinks. In-migration results from people´s choosing one area over others. Outmigration however, is a more complicated process for normal population. It has to be taken in count that migration processes of transients are completely different than other population groups. The growth of transient population itself reduces relatively the area´s normal attractiveness; this area´s attractiveness is reduced for non-transient population but not for transient population.

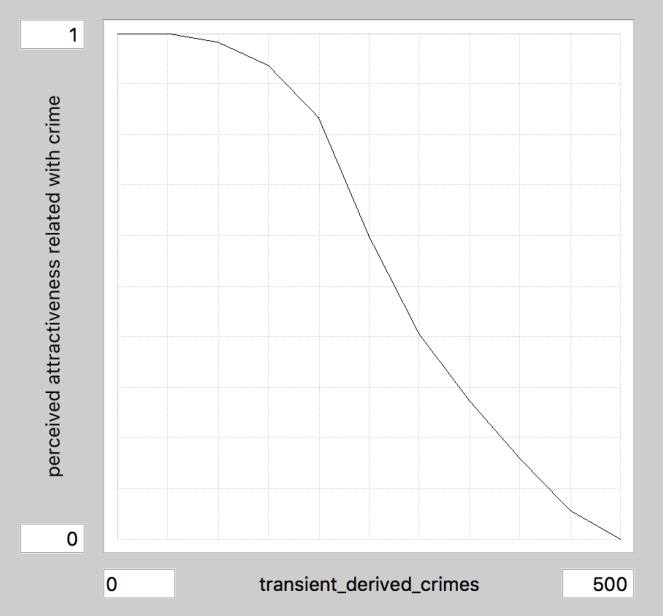

Figure 20: Graphical Function of Perceived Att. Related with crime

Although in this work are not modelled exogenous variables as the conditions of surrounding areas, it is important to mention that any change in a city or its environment creates a difference between internal and external conditions. Changes in the external environment influence flow rates across a city boundary. As social conditions could straighten in the external environment, a city could expect additional in-migration. Conversely, improvements in the external environment normally lead to improvements within a city. Changes in the external environment are not the only source of urban change. Any actions taken within a city to alter its attractiveness relative to the external environment also trigger flows across the city boundary. Actions undertaken entirely within the city boundary create flows across the boundary, not by affecting the external environment but by internally changing the city relative to its external environment. Even when its external environment

remains unchanged, a city can alter its relative attractiveness and thereby induce flows across its boundary (Sweeney and Alfeld, 1975).

5.2 VALIDATION AND MODEL TESTING

Model testing and validation has been done in order to recognise if the model could (or not) reproduce experimental measurements, to establish the relevance of model parameters and to determine if some parameters and variables are crucial. By validation is it meant that the model could be trusted to explain the causes of the transiency phenomenon in Fort Collins. In order to determine this, there have been developed many different tests to uncover the flaws of the model and try to improve it. In this section there are mentioned the different performed processes to test the model (the sensitivity analysis of the policy is developed in section 6.3).

Test	Purpose	Procedure
Documentation	Providing a deeper understanding of the transient population of Fort Collins	This model has been built from scratch. It has been needed to collect numerical, written and mental data to complete its elaboration. Nonetheless, due to the lack of specific data about transiency, there have been developed many assumptions based on urban sociology and classic urban dynamics theories.
Parameter assessment & Dimensional Consistency	Test if the parameter values are consistent with the description and numerical knowledge of the system, and evaluate if the model maintains the hypothesis.	Each sector of the model has been built and tested independently. Later there have been added new variables and parameters that linked the sectors between each other and created the behaviour endogenously.

Test	Purpose	Procedure
Testing under extreme conditions	Check the robustness of the model and find flaws.	1. There have been changed the values of variables like delays, average times, percentages, rates and frequencies to discover if there were present unexpected behaviours. 2. There have been modified parameters as multipliers, pressures and effects to test any changes in the model behaviour. 3. The model has been tested under extreme conditions such as “no transients”,”very high number of transients” or ”no attractiveness”
Behaviour Reproduction	Test if the model generates endogenously the symptoms	It has been examined the response of the model to changes in the inputs, shocks and noise. It has been observed and corrected the model output (modes of behavior, shape and unusual events)

Test	Purpose	Procedure
Behaviour Anomaly	Test if the model generates anomalous behaviour when assumptions of the model are changed or deleted	This criterion has been specially tested with the attractiveness parameters, which have been developed based on diverse Urban Dynamics theories developed by Forrester(1969), Mass (1974), Sweeney and Alfeld(1975), and Collins (1976).
Surprise Behaviour	Find discrepancies between model behaviour and expectation	There have been realised simulations as the model has been built. When unexpected behaviours have shown up, the responsible parameters have been found, calibrated and fixed.
System Improvement	Solving the problems generated by the system	There have been build policies to correct the behaviour of the model in the future. The process of documentation of those policies has included the research of precious policies and exploration through laws, in order to make them feasible for Fort Collins.

5.3 LIMITATIONS OF THE MODEL

As Sterman (2002) indicated, understanding complex systems requires mastery of concepts such as feedback, stocks and flows, time delays and nonlinearity. The explanatory model of *the transient problem of Fort Collins* tries to represent the original system structure. In order to address that goal, the system includes some of the most essential elements that affect the system (e.g. population information, word of mouth effect, process of becoming a transient, attractiveness of social system, homelessness in Fort Collins, prison system…). However, it is a simplification of the reality and it does not include all the parameters that affect the system. For instance, transiency is a seasonal phenomena while in this model it is not made any differentiation between seasons.

In addition, the numbers that compound the historical development of transients in Fort Collins is estimated data based on information found in many articles of the local newspaper The Coloradoan. There is not available specific historical numbers regarding transients in Fort Collins due to the complexity of their nature and the difficulty of the authorities to track them, and there is no information either about the exact number of crimes produced by transients.

In this thesis are not analysed other popular destinations of the area (e.g. Boulder, Loveland or Aurora) and analysis of the fluctuations between these places and Fort Collins would be very interesting since there are many transients who travel within the Colorado area. In addition, important issues related with transiency as mental diseases or substance abuse, which lead to an aggressive behaviour, are not addressed either.

Due to the difficulty of getting specific information about the individuals that conform this group and therefore, the lack of specific information about them, this model is based on many assumptions. A representative example is the term attractiveness, which broadly denotes the interest that leads transients to travel to Fort Collins. Although it is true that the most of the transient population is attracted to the services offered by the town (otherwise they would never come), transiency is a personal circumstance, and the decisions of the persons are individual. Other concept that it is not supported by numerical data is the perception of the citizens. This perception, however, has been explained through sociological theories and qualitative data implied in media, survey, websites and allegations of citizens.

Ideally, the explanatory model has to generate the same behaviour of a system, i.e. reference mode. Due to the complications mentioned above regarding data, this reference mode is not accurate. Furthermore, the trend of the Historical Development of Transient Population generated by the model assumes that there are not any variables that affect that development, which is

unrealistic. Some of the variables are estimated based on the data found in different sources like local media, local organisations or data provided by the City of Fort Collins. Others, like the perceived crimes produced by transients, the number of people who adopt a negative opinion about the situation with transients, or the effect of pressure on working hours, between many others, are based on assumptions. However, all of the data indicated in the parameters can be modified and adapted to different scenarios.

The aim of this thesis is analysing the increase of transient population and in consequence, the increment of crimes caused by them. However, it is important to mention that Fort Collins is a place with a very low criminal rate and precisely that low criminal rate creates a high visibility of any incident that occurs in town.

The Policy design suggested in this thesis includes the creation of some new strategies and decision rules. Nonetheless it does not mean that this is the only solution or even that if implemented, this policy would be successful. In fact, as Sterman (2002) pointed, it is typical that well-intentioned efforts to solve pressing problems create unanticipated "side effects" because our decisions might provoke reactions that we did not foresee. Furthermore, all the feedback effects of our actions that we are not aware of, could lead us to policy resistance and an intensification of the problem.

6. POLICY DISCUSSION

6.1 DECREASING ATTRACTIVENESS TO DECREASE GROWTH

The theory of urban dynamics was developed in the belief that the key to improving a city lies not only in isolating its many problems but also in identifying the network of connections that exist between those problems. The attractiveness principle and the orientation towards problem interconnections combine to form the basis of this study. The main policy proposed in Fort Collins is to decrease attractiveness to decrease growth.

The magnitude of migration flows into and out of Fort Collins are a function both of conditions within the area and the population size. If opportunities in the area are relatively more available within than outside this area and other conditions are equally attractive, people are more likely to find out about this opportunities and go to this area. The cost of living, crowding, geographical location, cultural amenities, environmental quality and social benefits all influence the attractiveness for migration of an area relative to the other areas that constitute its environment. An important feedback loop connects the attractiveness of Fort Collins, the flows of people into and out of the town in response to its relative attractiveness, and the population movements that change the city´s internal conditions and its attractiveness.

Two quite different kinds of action could be chosen in dealing with a complex system such as an urban area. One is to make a frontal assault with direct-action programs aimed at correcting deficiencies. A quite different approach is to alter the internal system which has created the deficiencies (Forrester, 1969). Since this study aims to decrease the attractiveness, it is suggested to reverse the causes that are internally generated which attract transients. Between this causes can be found the easy access to social services or money. This component of attractiveness does not have to be eliminated; a radical policy would just shift the burden to a bigger problem in the long run. The way to deal with this attractiveness component is changing the access conditions, so they would not be easily available for transients in a short term. In addition, it is suggested a complementary policy to accelerate the outflow of transient population of Fort Collins. The aim of this policy is to help people get to their destination and reduce the expenses of the city at the same time.

6.2 POLICY

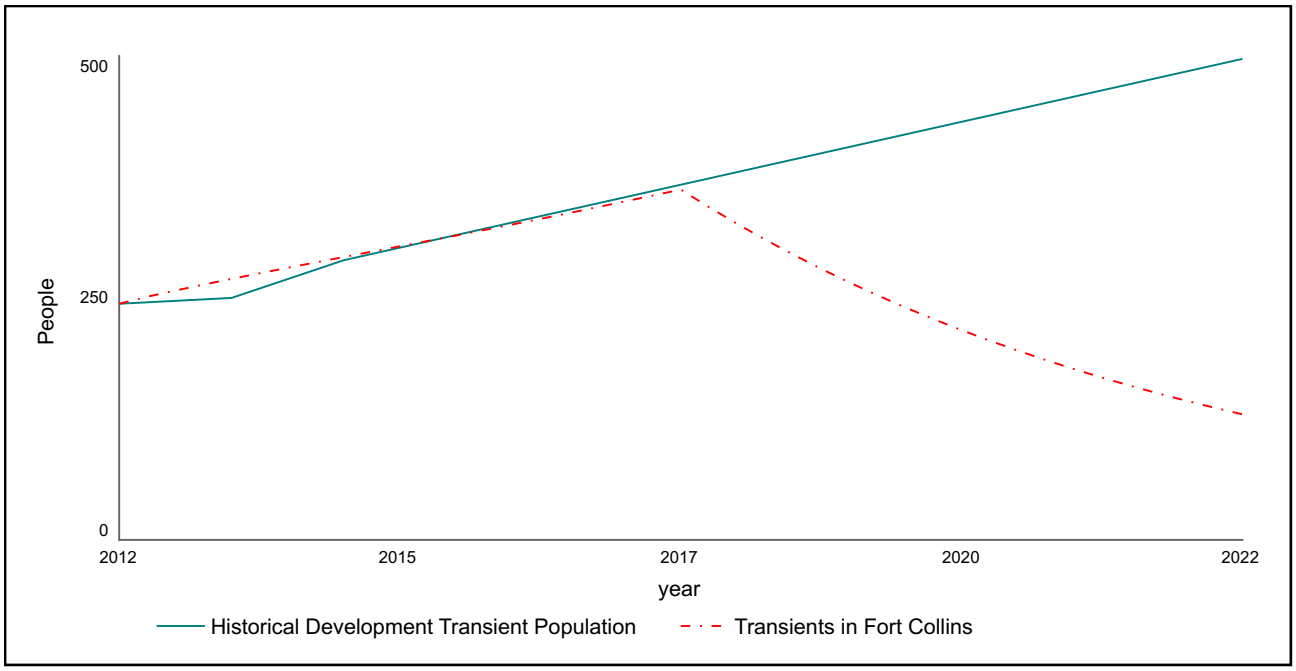

Figure 21: Transients in Fort Collins development when applying Policy1 & Policy "Return Home" (Simulation Results)

In the Fort Collins model there are two policy options. "Policy1" focuses on decreasing attractiveness to reduce and decrease the growth of the transient population. The second policy, "Return Home", consists in a decrease of the average time to emigrate from Fort Collins to their place of origin or any other location where transients could get help from their family or friends.

"Policy1" suggests a direct and solid action to decrease attractiveness in year 2017. In the model, this reduction is applied both in *Transient Attractiveness multiplier* and in *Attractiveness of sheltering multiplier*, meaning that the action developed to reduce the relative attractiveness for transient population has to affect not just to the transient network but to the social benefits that they could get in Fort Collins. As mentioned in *3.1.2 Shelter Sector*, the variable Attractiveness of sheltering multiplier very broadly denotes not only the vacancy rate in the aggregate shelter stock but also such other concomitants of the shelter supply as diversity of choice in size and location, and quality of services. Both multipliers have effect over the Transient Immigration Rate and, in consequence, over the stock of Transients in Fort Collins.

Policy "Return home" suggests a decrease of the average time to emigrate from Fort Collins to their place of origin or any other place that transients could call home or receive help from their family or friends. This policy is meant to be complementary to Policy1 to produce a fastest decrease of the number of transients in Fort Collins. If applied Policy1, there is a reduction of a 55,53% of the

transient population with respect to the Historical Development Transient Population trend by year 2022. However, when applied the combination of Policy1 and Policy "Return Home", this reduction becomes a 73,64% with respect to the Historical Development trend.

By decreasing the Attractiveness multiplier there is produced a direct effect over the Sharing frequency of information between transients about Fort Collins (Fig. 22), and in consequence, reduced the Transient Immigration Rate, which leads to a decrease of the stock of transients in Fort Collins. Moreover, the effects of the reduction of transient population could also be perceived in the *Shelter users to shelter ratio*, which after a delay of some months, is also reduced, releasing the pressure over the Social System Capacity (Fig. 23).

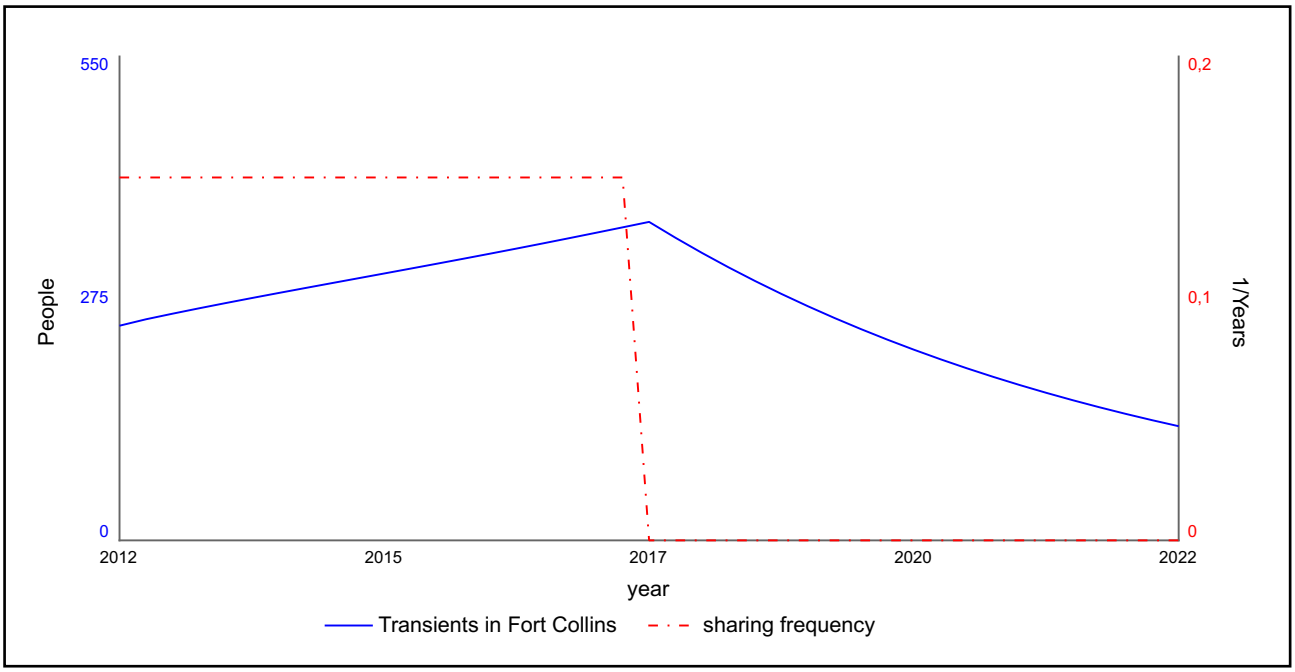

Figure 22: Reduction of Transients in Fort Collins and effect on Sharing Frequency (Simulation Results)

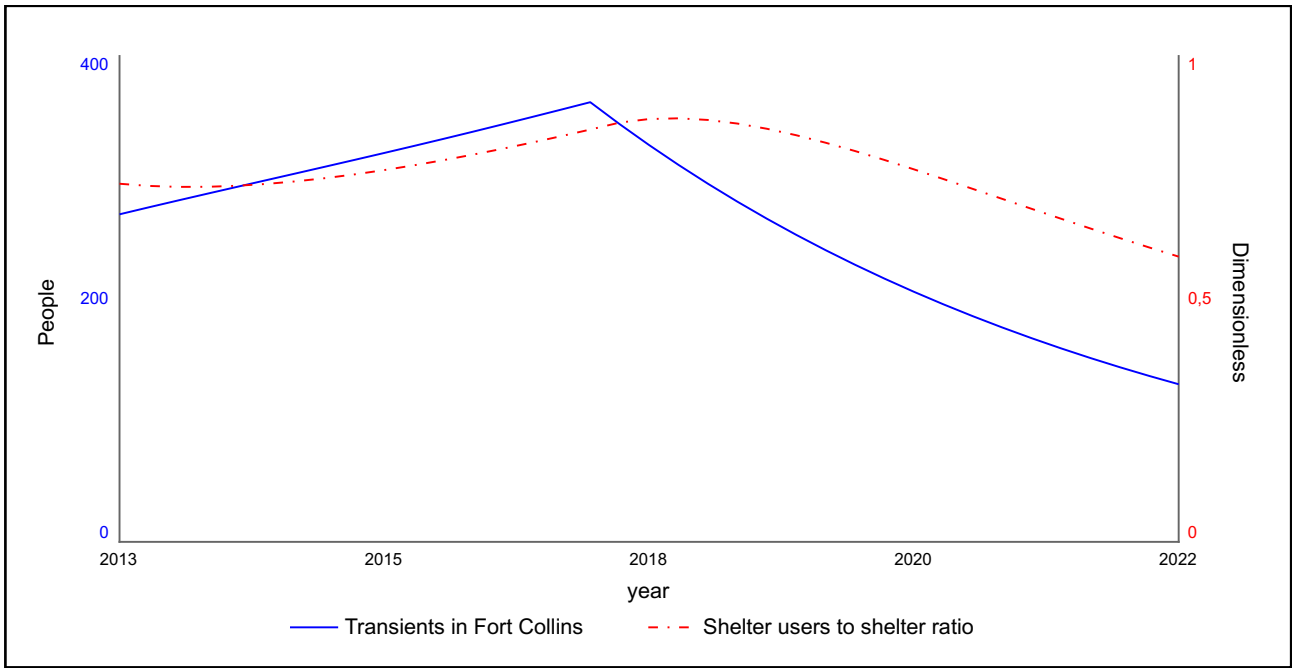

Figure 23: Reduction of Transients and effect over "*shelter users to shelter ratio*" (Simulation Results)

However, where the positive effect of reducing the number of transients in Fort Collins is more evident, is in the *Transient related problems* sector. As shown in Figure 24, the reduction of transient population leads to a direct reduction of the crimes produced by transients. As the number of problems generated by transients decrease, it also does the number of perceived crimes produced by transients. Nonetheless, it takes time for population to see a change in the situation and twist their negative opinion into a positive one (see figure 25). However, after an inflexion point in 2018, the positive impression increases increasingly, and the perceived crimes produced by transients practically reach 0 by 2022.

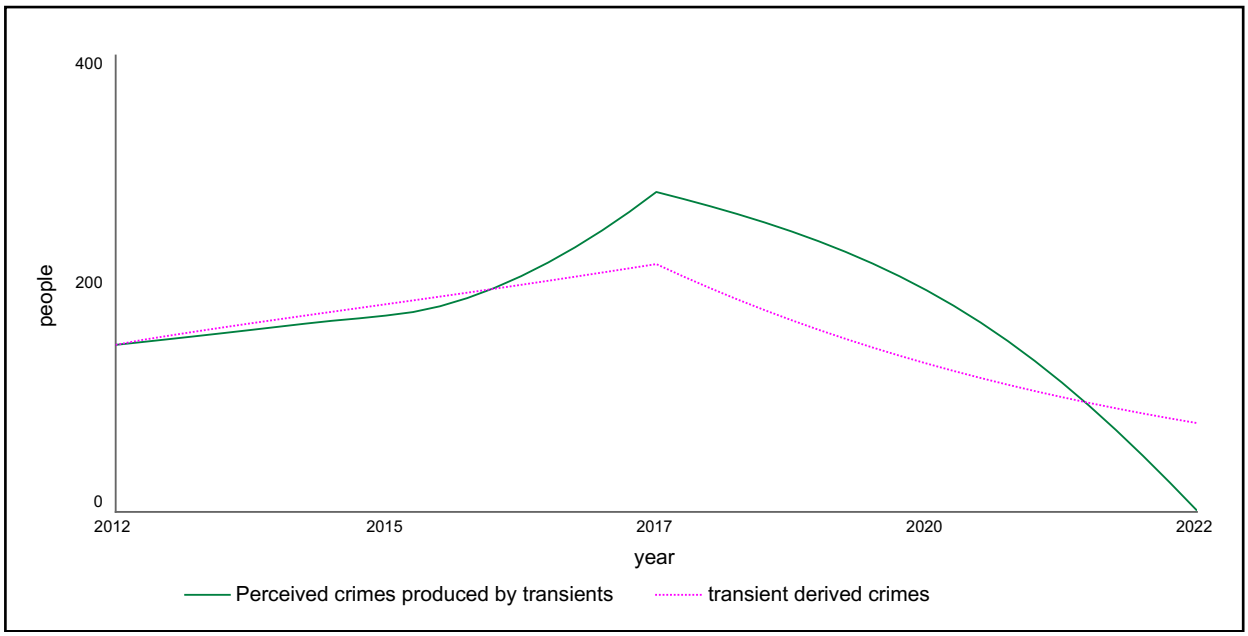

Figure 24: Crimes produced by transients and population´s perception of crimes (Simulation Results)

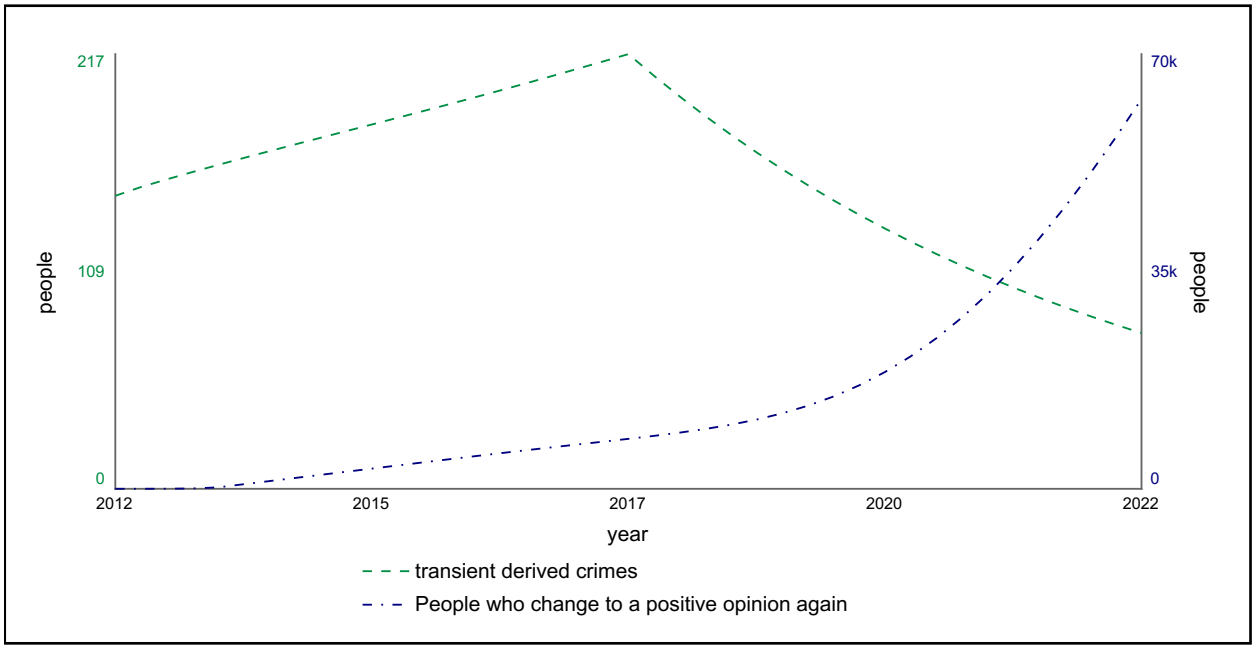

Figure 25: Effect of Reduction of Transient crimes on population´s positive opinion of transiency in Fort Collins (Simulation Results)

Reducing transient population leads to a better perception of citizens of Fort Collins of the situation of the town, but that is translated into relief of the pressure over the administration, pressure over organisations and of course, pressure over police force. As shows Figure 26 and figure 27, as the number of crimes produced by transient population is reduced, the pressure to expand police control follows the same pattern, and in consequence, the number of worked hours per week are reduced. As it happened with the perception of the number of crimes, there is a information delay between the change in the city and the moment when citizens perceive that change, and therefore, the relief over the pressure to expand police control will stop its growth slowly until it is reversed and decreased exponentially.

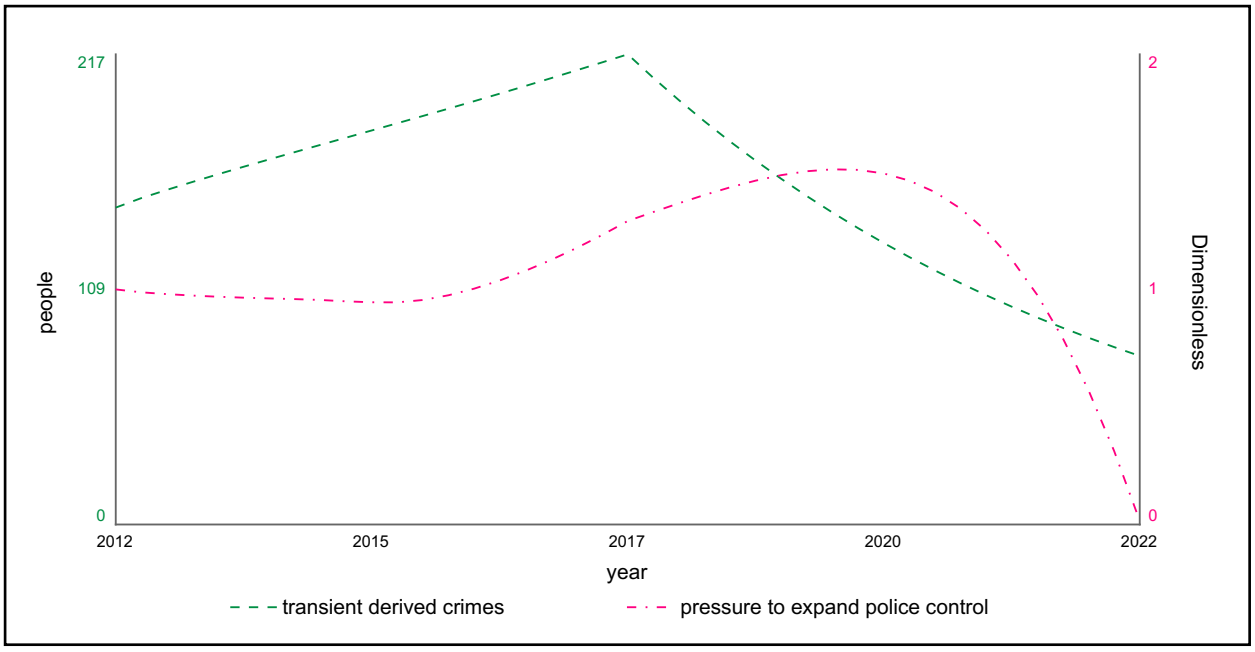

Figure 26: Effect of Reduction of Transient crimes on population´s positive opinion of transiency in Fort Collins (Simulation Results)

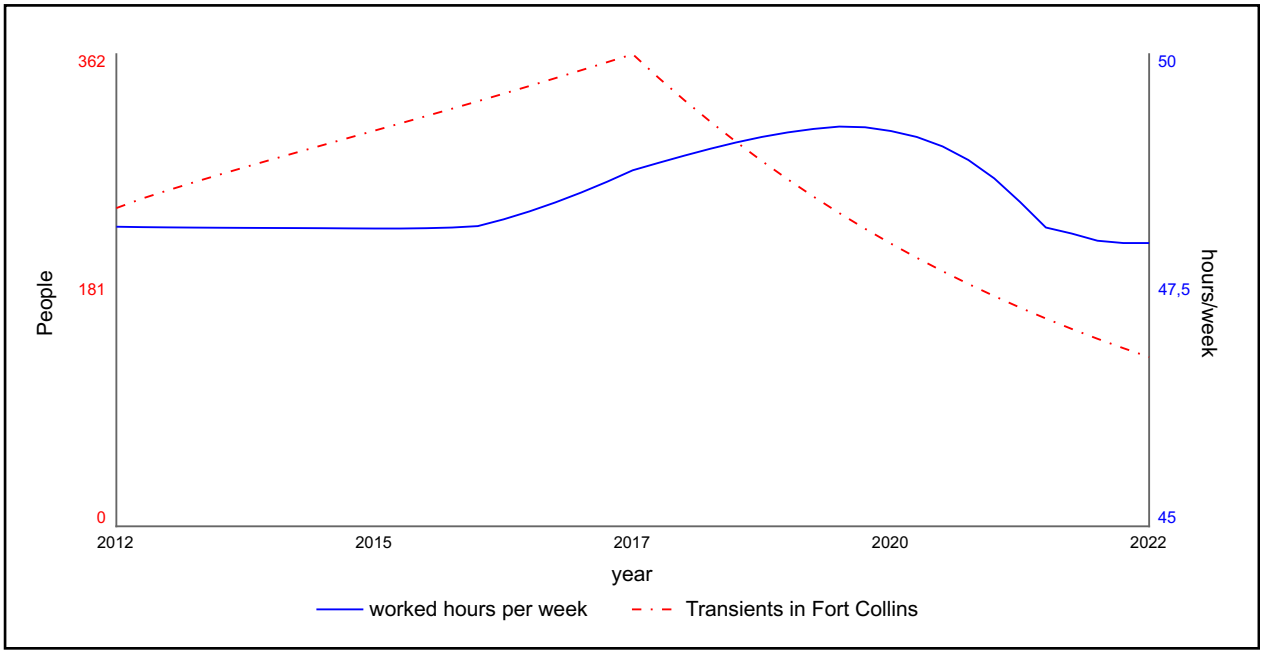

Figure 27: Effect of Reduction of Transient crimes on worked hours per week by police (Simulation Results)

6.3 POLICY SENSITIVITY

The policy has been tested under different scenarios to observe how would the behaviour of transient population of Fort Collins develop over time. However, since the recommended policy of this thesis suggests to focus on three elements; the *Transient Attractiveness Multiplier*, the *Attractiveness of Sheltering Multiplier* and the *Transient Emigration Rate* (Policy "Return Home"), the behavioural sensitivity and numerical sensitivity when reducing each one separately is crucial.

Policy1 applied just to *Transient attractiveness multiplier*

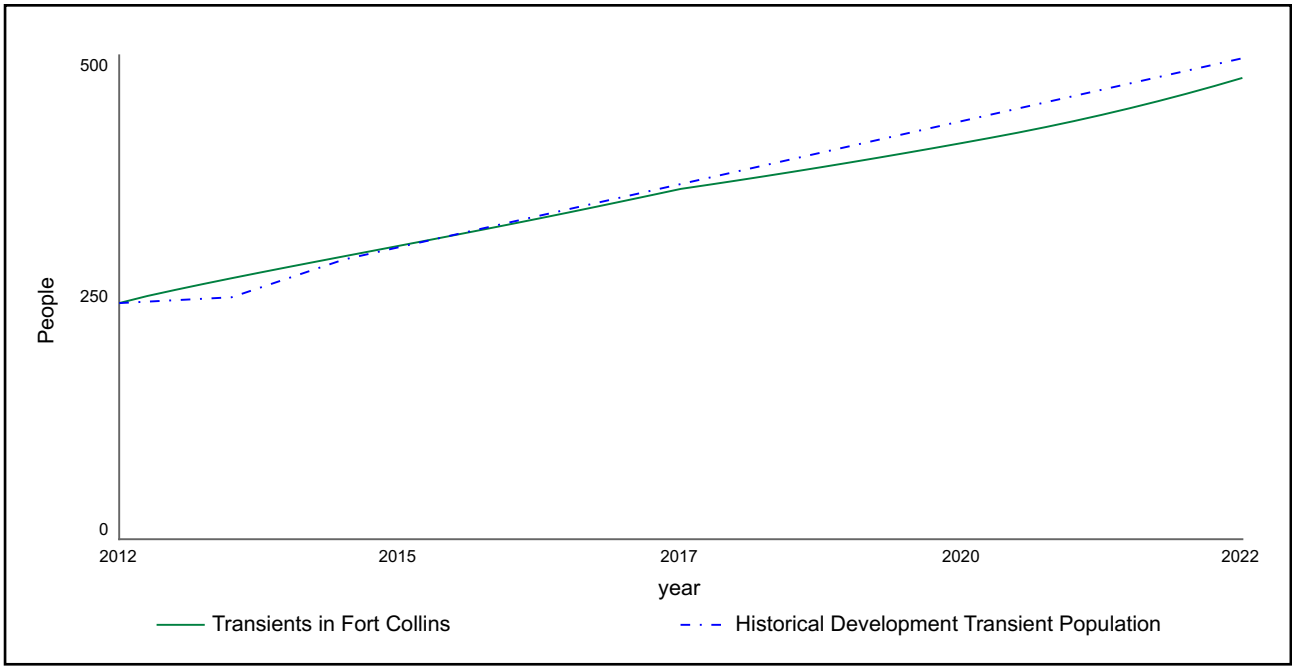

Figure 28:Development of Transients when reducing just the "Transient Attractiveness Multiplier" (Simulation Results)

When the reduction of the attractiveness is focused just on the *transient attractiveness multiplier* (same numerical reduction than in the original policy), meaning that there is not effect on the social services offered by Fort Collins, there is a slightly decrease of the transient population with respect to the Historical Development trend between 2017 and 2022. However, after year 2022 the number of transient population grows smoothly again until reaches the same value as the Historical Development trend. After testing with different policy values, simulations show that in order to get a significant decrease of the transient population, it is needed to apply a policy as double as "hard". This might mean that if a policy does not affect the social services offered by Fort Collins to the transients it could not be effective in the long run. If the policy just affects to the transients and not to the social services the relative attractiveness is not reduced enough to make them stop coming to Fort Collins, regardless of the aggressiveness of that policy.

Policy1 applied just to *Attractiveness of sheltering multiplier*

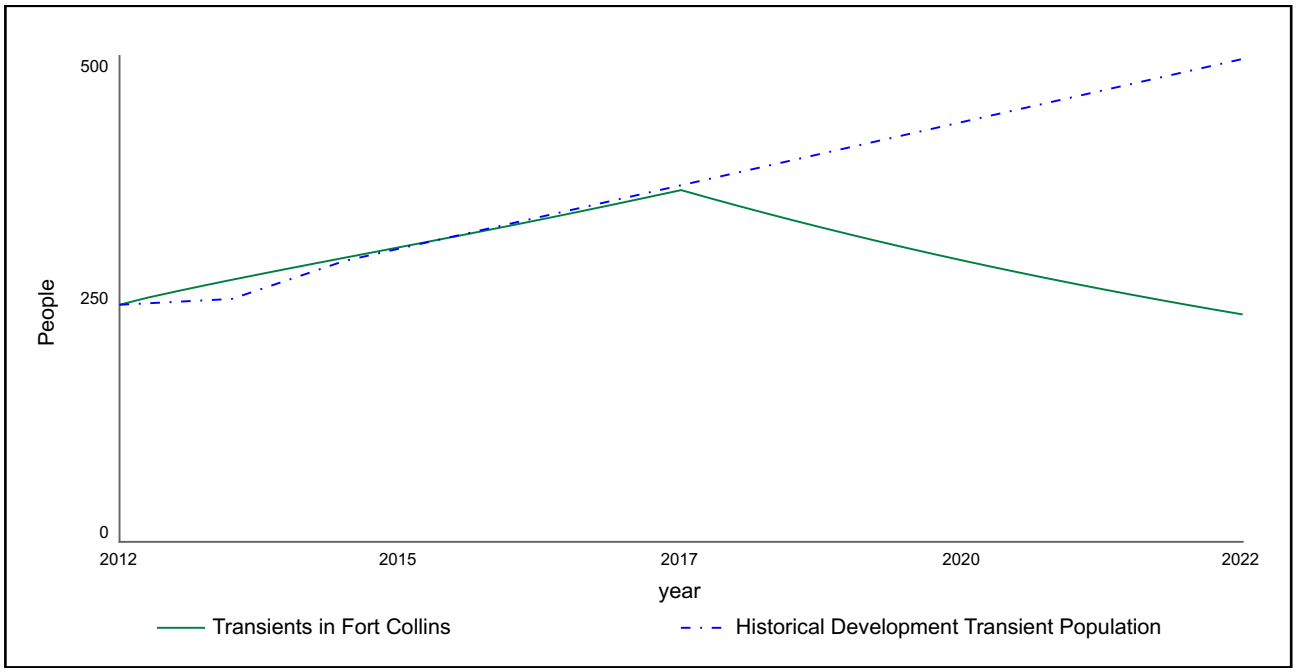

Figure 29:Development of Transients when reducing just the "Attractiveness of Sheltering multiplier" (Simulation Results)

When the policy just focuses on the reduction of the *attractiveness of sheltering multiplier* (and all the social benefits related to this multiplier), it occurs the opposite. The reduction of the relative attractiveness of social services in Fort Collins has as effect a decrease of a 52,5% of the transient population if compared with the Historical Development of Transient Population trend (by 2022). However, although this policy is effective, is a 4% less effective than the original Policy1, which reduces the attractiveness of both the *Transient Attractiveness multiplier* and the *Attractiveness of sheltering multiplier.*

Policy "*Return Home*" without Policy1

When the Policy "*Return Home*" is applied without combining it with Policy1, the number of transient population decrease a 22,5% by year 2022 in comparison with the Historical Development Trend. However, this decrease is followed by a stabilisation and posterior increase. This means that in the long run this policy is not effective if it is not combined with another strategy, like Policy 1, that focuses on the reduction of the root of the problem. Accelerating the outflow of some transients means that transient population would leave faster. However, the inflow of transients would be exactly the same, and therefore, they could produce the same problems and Fort Collins would keep the same problems.

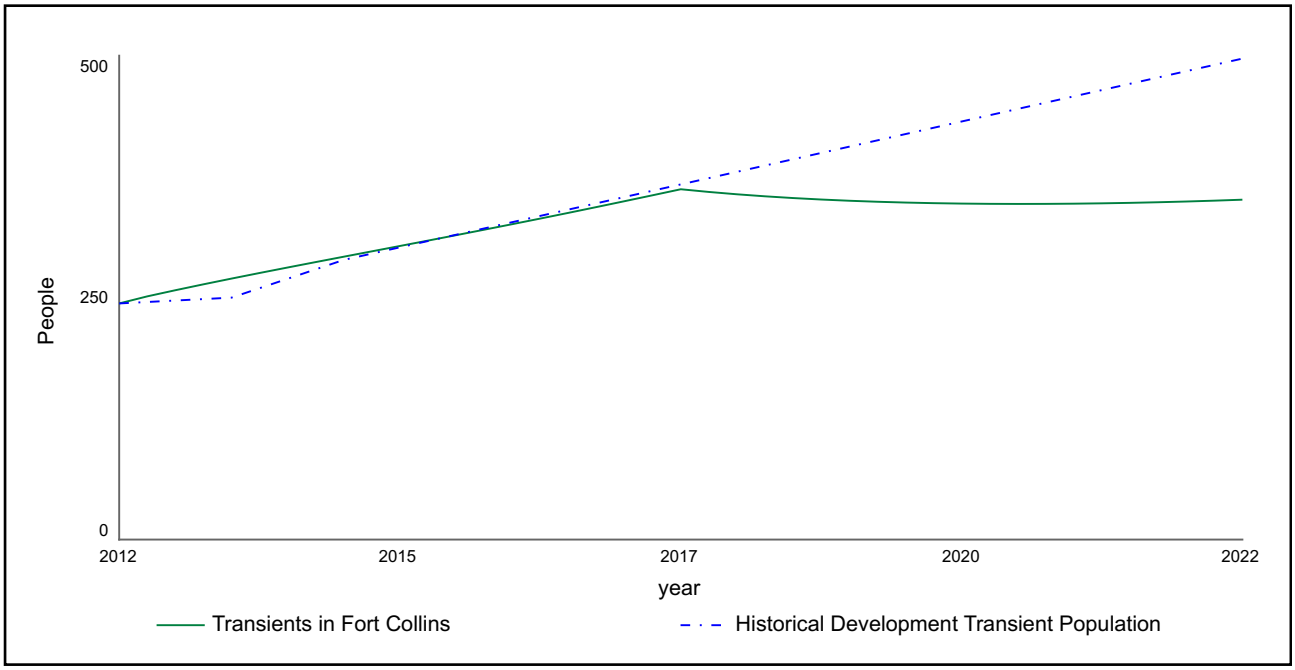

Figure 30:Development of Transients when applying just Policy "*Return Home*" without Policy1 (Simulation Results)

6.4 CONCLUSION ABOUT POLICY

Jay Forrester argues in Urban Dynamics (1975) that the relative mix among housing, population, and employment-producing activities significantly affects a city´s socioeconomic condition. Since this thesis studies the effect of the transient population, it is stated that an increase of this population group leads to an increase of the crime in the city, an increase in the expenses of the city and a decrease of the relative attractiveness of the city perceived by non transient population and therefore, increment of negative perception about the situation of the transients in Fort Collins.

A city´s first responsibility is to its own residents. City policies to improve the social conditions should first benefit current city residents. Fort Collins offers a wide variety of social services in order to improve the conditions of people with fewer resources. However, no city could create enough jobs to satisfy unemployment immigrants from all other places, no city could create enough housing to satisfy the huge demand existent in the US and no city could create enough social resources to solve the poverty problem of the country. As Meadows (1972) indicated in *The Limits to Exponential Growth*, the second category of necessary ingredients for growth consists of the social necessities. Even if Fort Collins is physically capable of supporting a more larger transient population, one of the main factors of growth is the social stability of transient population, which is given through diverse social services. Demand of services will always grow exponentially as population does and the only way to stop it, is not expanding the available resources. The creation

of new housing or social assistance without controls on transient immigration may only worsen crowding and further overload services in the city.

Only when a city is able to sustain its current residents with adequate employment and opportunities for advancement should a city undertake to upgrade the socioeconomic status of immigrants. To remain socially and economically healthy, a city has to generate upward mobility among its residents. Improved opportunities for city residents and constrains on excess immigration require negative city features to counterbalance the relative attractiveness of those new opportunities. In Fort Collins, those "negative features" should be to limit or restrict the access to some services, in order to avoid excess immigration due to them.

After simulating the recommended policies in different scenarios and putting them through sensibility analysis, the strategy that has a higher percentage of reduction of transient population is the combination between Policy 1 and Policy "Return Home"; reducing the relative attractiveness of the social services of Fort Collins and the transient perception of Fort Collins, and helping transient population to leave the city faster. After this highly effective combination, the policy that works better is Policy 1, which creates a reduction of 55,53% when compared with the Historical Development trend.

STRATEGY	NR. OF TRANSIENTS BY 2022	% REDUCTION
No Policy	497	0
Policy1 applied to Attractiveness Multiplier	221	55,53
P1 applied to Attractiveness Sheltering Multiplier	236	52,5%
P1 applied to Attractiveness Transient Multiplier	477	4%
P1 + P2	131	73,64%
Policy "Return Home"	371	22,5%

Policy1 suggests a combination of a reduction of the attractiveness of both social services offered by the town and the relative attractiveness perceived by transient population. According to the model, reducing just the attractiveness of the Social Services is more effective than reducing just the relative attractiveness perceived by transient population. However, although simulations show that

Policy1 could be effective just reducing the Attractiveness of sheltering multiplier and without decreasing the Transient Attractiveness multiplier, it would be profitable to work in a policy that affects both. The reason goes beyond the numbers. The process of becoming transient is complicated and the social network has a very important role. The Transient Attractiveness multiplier is produced by the own transients, who make the place more attractive for other transients. This is a simple process that works in the same way between other communities and places. If the policy worked on debilitating this network process and therefore, decreased the *Transient Attractiveness multiplier*, it would not be needed to apply a very aggressive policy to reduce the relative attractiveness of the social services in Fort Collins. On the other hand, simulations show that when the reduction of the attractiveness is focused just on the *transient attractiveness multiplier* there is not any beneficial effect in the long term (there is a slightly decrease of the transient population with respect to the Historical Development trend between 2017 and 2022 followed by a increase of the population afterwards).

Regarding to the Policy "Return Home", it has a high effectivity when combined with Policy1, since it increases Policy1 effectiveness by a 18,11%, creating a total reduction of a 73,64%. However, this policy seems to not have a large effect either alone or in the long term.

6.5 LEARNING FROM PAST POLICIES

There have been approved many policies in response to the growing number of transients migrating to different cities. For some, the issue of the transients is something new and sometimes difficult to differentiate from homelessness. For other cities, like Los Angeles, Portland or Hawaii, it is a problem known for decades.

There are several policies that try to address the problem and worsen it. Portland for instance, built a "Dignity Village", a camp for transient or homeless people to accommodate the rise in the transient population and breaking down illegal campsites. However, transients go to these cities only to find there is no room available since the camps could only handle a small fraction of the transient population. This is a good learning lesson which demonstrates that the number of transients increase when services are more readily available and promoted. If the capacity is expanded, the number of individuals will keep growing. In addition, there is a information delay between when the services reach full capacity and when transients get to know that there is not more available place for them. Therefore, even when the camps are over their limit, people keeps coming and they end up camping anywhere else. This situation creates more and more pressure over the city and a reinforcing loop of financial problems.

This undesired effect has been manifested in previous policies of other cities, as the ERA project, Rent Control in California or diverse housing policies that didn't work. All this social policies had very good intentions but they turned to cause more expenses in the long run and really bad consequences. The ERA project, a British program whose idea was to get provide both help and incentives to get people to progress at work, breaking out of the low-pay no-pay cycle. Participants of this project got cash bonuses of £400 three times a year for 2yrs for staying in full-time work, plus £1k for completing training. Dorsett & Oswald studied the effects of ERA on wellbeing and financial security and they found that people in ERA had lower life satisfaction five years later than those who weren't on ERA. When the programme was actually running, there was no effect on life satisfaction. In addition, the researchers also found out that people in ERA had more money struggles five years later than those who weren't on ERA. Dorsett & Oswald's main explanation for the financial struggles findings was that if people started spending more money when they were given the bonus payments, then they may have struggled to adjust their consumption patterns back when this money later disappears. This has crucial implications for the design of social security policies. When policies increase income fluctuations rather than smooth them – e.g. through time-limited interventions – then they can actually create problems for people's ability to match their

spending to their income, with knock-on impacts on financial strains and wellbeing. There is a need on educating people to create stability in the face of all the changes in their lives.

Another example of a good policy that had a bad consequence is the policy “Santa Monica´s for Renters Rights (SMRR)”, developed in support of rent control for those individuals and families least able to afford basic housing. Not surprisingly, however, a wide array of studies have demonstrated not only that this policy failed, but that it has actually served to worsen the “affordable housing crisis” in the communities that have embraced rent control. In other words, not only has it failed to help those least able to pay rents, rent control has actually hurt them, making it harder to find affordable housing. The result has been, the emergence of high priced shadow markets, decreased supply of available rental housing, middle class renters hoarding price controlled units, and gentrification of areas directly affected by rent control.

Allocating permanent housing to more recent shelter entrants—by assigning housing randomly or by trying to house everyone who is sheltered or judged ready for permanent housing—would make more amenable the cost of a shelter stay for many of the millions of unsubsidized households who are not homeless yet qualify for subsidies. This would greatly expand shelter demand.

Examples of this effect occurred in three areas where shelter agencies specified or would-be shelter entrants perceived shelter occupants would gain subsidies after a short or virtually no shelter stay. In the late 1980s, St. Louis County, Missouri informed families waiting for Section 8 vouchers the Department of Housing and Urban Affairs (HUD) had established shelter occupancy as a priority criterion for vouchers. Families thought a shelter stay of any length would qualify them, causing the demand for shelter to become so great that the City of St. Louis began to require entering families to document they were city, and not suburban, residents. To further slow the flow, the city turned away those who stated as they were being assessed that they sought shelter to meet the HUD criterion (Daily 1993).

In Massachusetts, emergency preference or set-aside rental subsidies were not available for most families at-risk of homelessness. As a result, when the state established a special rental assistance program for sheltered families, it "had the unintended consequence of encouraging some desperate families to become homeless . . . to access scarce housing subsidies" (Stegman 1991, 258).

And in the spring of 1990, New York City began providing subsidized housing to families who had been sheltered three months; less in some cases. As a result, from April through October, when the

policy was changed, the monthly number of families entering shelters increased an average of 17.2 percent over the same months in the previous year.

These examples suggest that policies providing subsidies to recent shelter entrants will cause shelter demand to burgeon. Demand expands not because the causes of homelessness have worsened but because households that qualify for permanent housing see shelters as a more effective way to gain subsidies. Providing subsidized housing to sheltered people cannot be a general solution to emptying shelters. Given millions of qualified households without subsidies, it would be impossible to provide permanent housing to all who are sheltered without inducing households to enter shelters.

In contrast with the common subsidy policies that did not work, a completely unexpected failure was the innovative Winnipeg social housing in Canada. This was an award-winning (low-income) housing project that ended badly affected by crime, with families living in cramped and unsuitable conditions. The project is located in Central Park, a remarkably diverse neighbourhood in downtown Winnipeg. Each year, waves of immigrants and refugees arrive there from around the world. It is one of Canada's poorest and most densely populated urban areas. Previous schemes for low-income housing in the inner city had been unsuccessful, and the agency that was funding the design was not willing to take the risk again. After this, the original project changed into a subsidised rental project. The new stipulated structure required a much higher density: 25 homes, rather than the original six, affirming that small units encourage residents to spend more time outside, and give them a chance to rub shoulders with neighbours. The solution was to design the housing units as narrow, three-storey walk-ups. Some years afterwards, the narrow living spaces and the enclosed courtyard proved problematic. The learning lesson of this project is that it is better to provide families with a simple, functional design that they could build and adapt to their needs with cheap, accessible materials, than with a playful innovative design that does not adapt to the basic necessities. Additionally, it is not enough to make space within a community and bring people without taking in consideration the cultural context or the future of the residents who will live there.

Expanding capacity, providing free uncontrolled resources, permanent allocation for everybody or unmeasured housing policies have proven to not be successful, regardless of the good intentions of the policy makers. Alternatively, there have been implemented many other non-housing policies which have proven to work in cities like Boulder, Hawaii, Orlando, New York, Philadelphia or Florida, between many others. Some of these policies caused a lot of noise and controversy between media and citizens because of "criminalising" homelessness and transiency.

Although the goal was to relieve the pressure caused by transients and improve the environment in the cities, the most of them were accused of being too harsh and aggressive, and some of them ended up being cancelled.

One of the most controversial policies was the "sit-lie" law, installed in cities like Hawaii, where it is banned sitting or resting in a public space. There is a limited time of siting or resting in certain areas during certain times of the day, which keeps homeless and transients away from the most popular tourist areas. But Hawaii has installed another transient regulations with the aim of reducing the number of homeless and transients in the city. Between the most unconventional it can be found the initiative "Return to home", which consisted in buying one-way flights to the continental U.S. for 120 homeless people to keep them away from tourists. In the same line it can be found an initiative considered by the government which consists in shipping the homeless to another island; Sand Island. In the 19th and 20th centuries, the island was where ships dumped off sick passengers as a quarantine. During the 1940s it was a Japanese internment camp and today it is home to the city's wastewater treatment plant. Right now, the Sand Island exodus has moved past the planning stage; it opened in November 2015 with six homeless volunteers moving.

An unpopular measure has been "denying people access to shelters". Due to an overcrowding situation of the shelters during 2012 in New York, the Bloomberg administration tried to institute new rules that would force shelters to deny applicants who failed to prove they had no other housing options, like staying with relatives or friends. A State Supreme Court judge struck down the new measure three months later, admonishing the mayor's office for rushing through the plan without adequate public vetting. Also in 2012 Philadelphia mayor Michael Nutter announced a citywide ban on giving food to the homeless in public parks. Amidst outcry by homelessness advocates and religious and charity groups, Nutter insisted the policy was meant to draw unhoused people to indoor facilities where they might benefit from medical care and mental health services. But public feeding bans are not new; a 2006 statute forced charity groups in Orlando to obtain special permits, and punished feeding more than 25 people with 60 days in jail or a $500 fine. A federal judge overturned the law in 2010, citing a litany of constitutional rights breached by the measure: freedom of speech, freedom of religion (one of the plaintiffs was a religious organization), freedom of assembly, and freedom of association. Orlando officials took up the case again, pushing it further and further up the courts, until a panel of judges finally voted in favour of the city in 2010. Similarly to Orlando, Dallas can fine churches $2,000 for distributing food in certain areas.

Another measure adopted by many cities has been installing obstacles to prevent sleeping or sitting; Minneapolis installed "bridge rods" - pyramid structures meant to keep the homeless from sleeping under bridges-, Benches in Honolulu bus stops were swapped out for round and concrete stools, Manteca, California, changed the sprinkler schedule from day to night in order to water any homeless who tried to sleep in a local park and Florida got rid of all the benches in its city parks and instituted a smoking ban in conjunction with the bench removal. The smoking ban has been implemented in other cities like Boulder in downtown business district, city parks, next to bus stops or entrances to buildings in order to keep away homeless and transients.

Also in Boulder, it is illegal to sleep outdoors with "shelter" (defined as anything other than clothing). Between 2010 and 2014 Boulder issued 1767 citations for camping, which is about 2 citations per individual at any given moment (at this moment Fort Collins issues almost three per capita).

Cities all over the country enforce strict anti-panhandling laws that make it illegal to ask for money, food or anything else of value around tourist attractions, and in some cases city-wide. Many panhandling laws protect against such threatening behavior as asking for money next to a bus stop, public bathroom, train station, taxi stand, on public transportation, or after dark. The number of cities with outright bans on panhandling increased by 25 percent between 2011 and 2014, while the number of cities with restrictions on begging in specified public places, such as near schools or banks, rose by 20 percent, according to a report by the National Law Center on Homelessness & Poverty, an advocacy group. Cities like Fort Lauderdale, prohibited anyone from panhandling, begging or soliciting at designated areas such as parks, city parking lots, government buildings and near sidewalk dining areas. In Orlando, a city ordinance forbids telling a lie or "misleading" when asking for money. Some cities like Oakland Park, Florida, made it illegal to give money to panhandlers. In Cincinnati, begging was banned near ATMs, parking meters and restaurants. Tennessee outlawed aggressive panhandling, making it a misdemeanor for panhandlers to touch strangers without their permission, block their path, follow them or make threats. Utah banned panhandlers from soliciting in traffic, and Atlanta outlawed panhandling throughout a swath of downtown. However, panhandling bans have faced legal challenges on First Amendment grounds—and a recent U.S. Supreme Court ruling has provided additional ammunition to opponents who argue such laws trample free speech protections.

A lesson from this is that panhandling laws shouldn't be designed to hurt the homeless, but to protect citizens from "aggressive panhandlers who don't take no for an answer". Giving money to panhandlers enables addicts and prevents them from getting the help they need. An interesting policy carried out by Wichita Police Dept. in Kansas, was posting a four-minute video on its Facebook page, where is showed that while it may seem like people is helping when giving panhandlers money, it perpetuates the homeless problem. In this video, they say some panhandlers are not homeless, and the money they receive often goes to supporting drugs, alcohol, and tobacco. Instead of providing them with funds, police have created small cards with information on places where individuals can get help locally.

The trigger of panhandling or begging is the money. People would never beg if there was not a response to that act.; getting money. Policies like banning panhandling or begging seem to end up with the problem, but just covers the symptoms of it in the short run. First, because the population doesn't understand why giving money is not helping and hurts beggars even more. And second, because reinforces the anger and the feeling of isolation of panhandlers and beggars, making them in some cases being forced to steal or be aggressive. Additionally, anti-panhandling regulation has been pointed out in recent trials as unconstitutional because prohibits certain types of speech based on content. According to the first Amendment of the Constitution, "Freedom of expression and religion", Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; or abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the Government for a redress of grievances. Therefore, expression is free and writing a message in a cardboard cant´ be penalized. Additionally, in accordance with the Art. II, Section 10 (2016) of the Colorado Constitution, "No law shall be passed impairing the freedom of speech; every person shall be free to speak, write or publish whatever he will on any subject, being responsible for all abuse of that liberty; and in all suits and prosecutions for libel the truth thereof may be given in evidence, and the jury, under the direction of the court, shall determine the law and the fact".

However, it is not the act of panhandling or the message of the cardboard what causes disturbances, but the derived actions of beggars when they get a no as answer. Conforming to the Section 3 of the Article II of the Constitution of Colorado, which refers to Inalienable Rights, "It is not an invasion of privacy to remind one of his obligations be they legal or moral, unless accompanied by harassment" (Tollefson v. Safeway Stores, Inc., 142 Colo. 442, 351 P.2d 274 (1960)). Asking, speaking, expressing or explaining a situation should always be allowed regardless of the person

who does it, except if that person uses threats or harassment. Forcing persons to give someone´s money or attention is also anti constitutional according to the fourth and sixteenth Amendments of the American Constitution. The sixteenth amendment establishes that just the "Congress shall have power to lay and collect taxes on incomes, from whatever source derived, without apportionment among the several States, and without regard to any census or enumeration", and the fourth sets "the right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated, and no Warrants shall issue, but upon probable cause, supported by Oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized".

Regardless if there is or not a regulation about panhandling in Fort Collins, in order to protect the Inalienable rights of the citizens, Section 3 of Colo. Const. Art. II states that "exercise of police power extends to so dealing with conditions when they arise as to promote the general welfare of the people. Colby v. Bd. of Adjustment, 81 Colo. 344, 255 P. 443 (1927)". Therefore, police has legitimate rights to intervene when someone is acting aggressively or abusively against other persons.

7. POLICY IMPLEMENTATION

When people have needs, they go to places where those needs are covered. It is logic to think that if a person is ill, that person needs to go to the doctor. If a person has psychological problems, he or she should go to the psychologist or if someone is alcoholic, this person needs help from a specialised centre. Some people might think that with the money they give to the beggars or panhandlers they could buy food. However, the reality is that even if that money is not spent on alcohol or drugs and that person uses it to buy food, the next day it is needed more money, and therefore, that person is pushed to beg again to get it. That cycle is never broken unless people gets help from rehabilitation centres, associations or get advise from professionals. And people who begs will never ask for that help if they are constantly given money to spend on substance abuse.

There is a vicious cycle between begging and poverty, where begging leads to a situation of dependency and victimhood to the person, and in consequence, of more poverty. On the other side, giving money to beggars also produces a vicious cycle of more and more begging. And again, begging reinforces the action of population giving more money. Giving money to those who simply sit on the street asking for money, only worsens the situation.

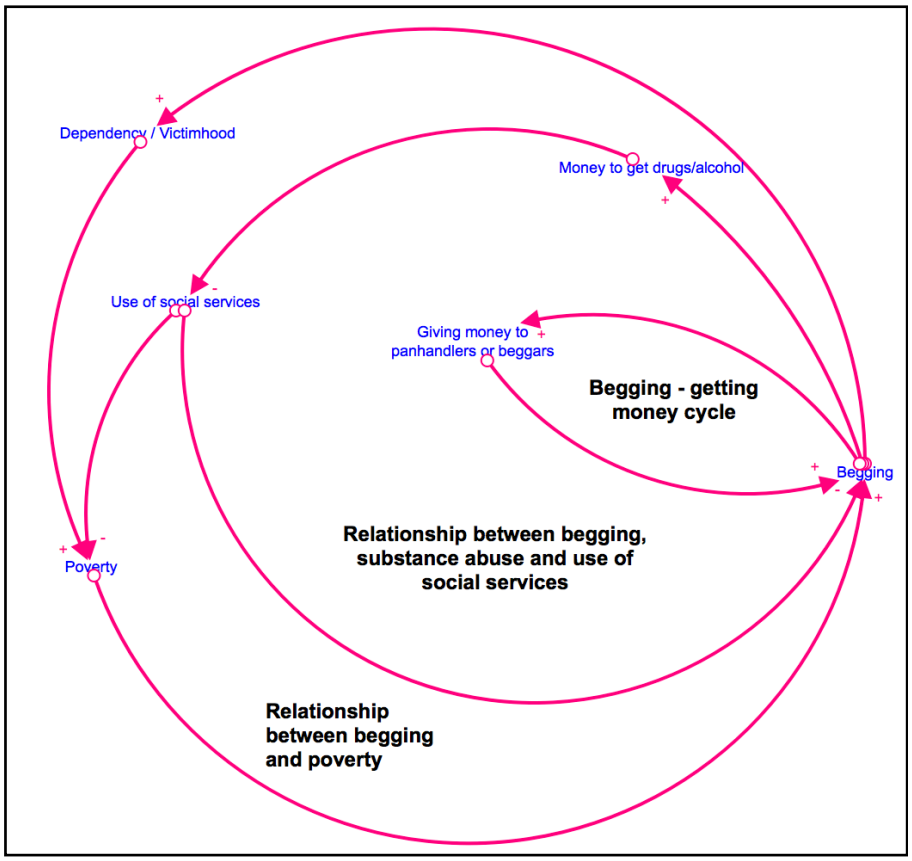

Figure 31: CLD of poverty cycles

Solving the transient problem in urban areas would be very beneficial for the authorities of such areas. It would decrease the city´s expenses in trying to solve the problem, release social pressure, reduce police stress, increase budget to be used in other grounds…But it would be equally beneficial for population. Interaction between authorities and population is indispensable in order to implement any kind of policy. Population needs to be shown that they could get a good payoff from this interaction. As Brian Skyrms pointed in Social Dynamics (2014), interaction evolves by reinforcement learning, with the magnitude of reinforcements being the payoffs from interactions. If you have a good payoff from an interaction with someone, you are more likely to interact with them again.

In this scenario *interaction* refers to listening and following the recommendation from the authorities; in order to help to solve the transient problem and help people who really needs help they don't have to give money directly to panhandlers or beggars. The only way to help people with problems is telling them where they could go to get the help they need or giving money to those organisations who could provide them that help.

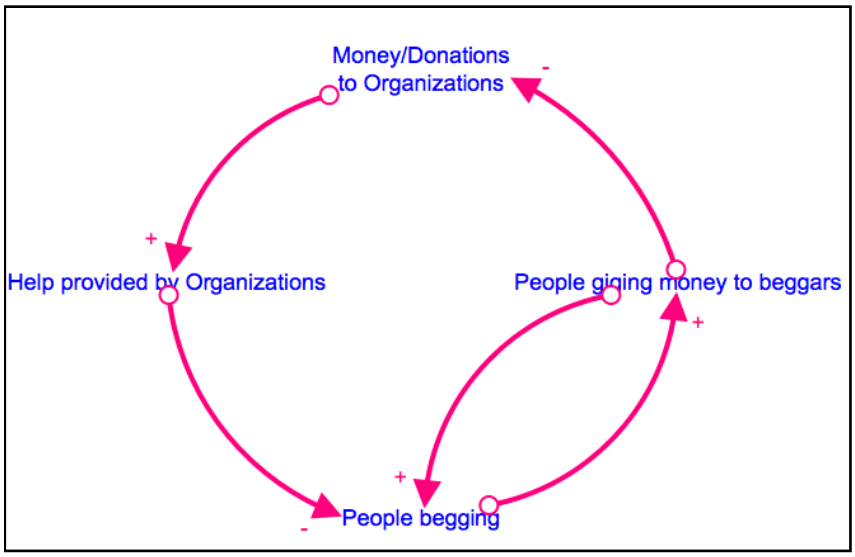

Figure 32: Causal loop diagram of the dynamics between begging and giving money to beggars

The more people is giving money to beggars, the less people is helping organisations, centres or NGO´s. Giving money is an act of humankind which fulfils the person once he or she *does something* to help, in this case giving money to a beggar or panhandler. People do not give money to all the organisations or all the beggars because it is impossible. The less money it is given to organisations, the less people those organisations can provide help. And the less people is helped,

the more are they pushed to beg. On the other side, if people stops giving money to beggars and gives it to organisations, those organisations will have more resources to help those who need help. In consequence, when someone is helped to get out of that vicious cycle of dependency, that person will stop begging. Thus, the positive payoff population could get from a proactive interaction with authorities would be making a real change in the lives of others, not just a fleeting one.

7.1 REDUCING THE RELATIVE ATTRACTIVENESS OF SOCIAL SERVICES

In the model, the *attractiveness in sheltering multiplier* refers to the relative attractiveness perceived by transient population of the sum of available social services offered by Fort Collins. Although the shelter availability is one of the most relevant social services, is the aggregate of all the services what creates the interest of transients. In Fort Collins there is a total of 44 institutions providing any kind of help to the homeless; help for children and single mothers, low income housing help, unemployment help, food assistance, medical assistance, shelter or electric bill assistance, between many others. Undoubtedly all these services are necessary and are doing a great job. However, if these services are offered without any control the consequences can be very bad for people who really need them. As it happened with the program "Santa Monica´s for Renters Rights" or the subsidised housing program of New York of 1990 mentioned in "Learning from past policies", when there are provided social services without any kind of measure, the result is an increase of the demand of those services. Such increase would additionally increase the expenses of the centres that provide help, slow down the process of providing the help to those who really need it and on last instance, obstruct the access to some services to people who is truly under poverty line.

There are hundreds of persons in Fort Collins who need that help and get it often, but the number of people coming to Fort Collins attracted to those same services grows over time. The challenge is setting where is the limit; who can make use of everything and who cant. When regulating who can make use of determined services it has to be taken in count three important things:

1. Criminal records. The biggest problem that has Fort Collins with the transients is the amount of crimes that they create. Therefore, resources offered by public institutions should always be prioritised to those citizens who do not have a criminal record that includes criminal offenses, many criminal prosecutions, is ongoing under a criminal investigation, has several arrests due to criminal

charges or hasn't been rehabilitated in any kind of way. In the case of private institutions it can be reserved the right of admission to citizens without any criminal record.

2. Time in Fort Collins. The amount of time a person has been in Fort Collins should also be an important factor to be considered. The local homeless people need to be helped and given the protection and security that are going to receive that help. Local authorities of Fort Collins and the team of *Outreach Fort Collins* are tracking and saving information of the people without resources of the town. The goal of this actions along with projects like *Homeward2020,* is ending homelessness in Fort Collins by 2020. That goal would never be reached if the local homeless cant get the help they need because of overcrowding services. All the collected information can be very useful in order to determine who needs a particular service and who does not. Shelters or meals shouldn't be denied to anyone if there are available resources. However, housing services, employment services, public benefits (e.g. transport), clothing, legal services or any other kind of services should be given just to those persons who have been in Fort Collins for at least 3 months. The reason behind this is that transients move from place to place to explore new places or opportunities after some weeks or even a couple of months. Having free access to determined services that are not available anywhere else than Fort Collins makes transients enlarge their time in the town. If non basic services are limited and the relative attractiveness is the same in Fort Collins than everywhere else, then they would not have any reason to extend their stay.

The most of the centres are private properties, and property rights have always been fundamental to and part of the preservation of liberty and personal freedom in the United States. The right to exclude other based on a determined criteria is a fundamental aspect of those rights. The United States Supreme Court has clearly stated that the right to exclude is a fundamental element of this constitutionally-protected right to private property, that physical intrusion, whether by government or by private parties acting under government permission, violates that right, and that individuals given a permanent and continuous right to pass over private property amounts to such physical occupation (Callies & Breemer, 2000).

3. Identification and cooperation with service providers. Identification, registration and notification of current status should be necessary to get any kind of service. Refusing to do this should be considered as an act of concealment.

7.2 REDUCING THE TRANSIENT ATTRACTIVENESS; COMMUNICATION, VISUALISATION AND IMPLEMENTATION OF SOCIAL NORMS

Reducing the Transient Attractiveness consists of lowering the relative attractiveness of transients about Fort Collins, which is built through diverse social networks like the traditional word of mouth and the contemporary internet.

This perception of the city is built based on information that changes over time. Therefore, the only way to modify the current impression is clarifying, contrasting and redefining it. Initiatives like the one carried out by Wichita Police Dept., posting a four-minute video showing the truth behind helping panhandlers and creating small cards with information about places where individuals can get help locally, work on reformulating the population´s perception of the problem. This kind of policies work because nowadays there are people who creates their perception of the world based on social media. Diffusing certain information through twitter, Facebook, youtube or other trending media is a fast way to promote something since the message could become viral. Additionally, offering people the tools to participate proactively in helping others is a good way to engage population in the implementation of new social norms.

Regarding to the implementation of social norms, context and framing effects can make enormous differences. This is commonplace in the social psychology literature that is brought to bear in Cristina Bicchierri´s (2006) The Grammar of Society. She sees the application of norms as being controlled by social scenarios or scripts that people act out. The same problem may elicit different behaviour depending on which script has been initiated and which norm it has activated. There are many ways to communicate the same things. If one situation has been criticised in a determined context, it does not mean that if that situation happens again, it will follow the same path.

There are examples that show that good communication and rapid response help to minimize the negative effect of a problem or crisis. The Toyota scandal of 2012 and the crisis management of Air France after the accident of 2009 illustrate how communication can turn a tragedy into something positive that improves a company´s image or on the other hand, lack of communication, bringing the opposite effects.

In 2012, after years of denying unintended acceleration in several Toyota and Lexus models despite mounting evidence, Toyota agreed to pay the U.S. Government $1.2 billion to avoid prosecution, the largest criminal penalty ever imposed on a car company. Like any other major

recall, Toyota first tried to blame driver error. Then it suggested that floor mats were somehow impeding the return of the gas pedal, even while the company was hiding documents that showed a flaw in the gas pedal assembly was the culprit. Toyota first came under fire in 2009, when authorities released an audio recording of a 911 call from California Highway Patrol Officer Mark Saylor's Lexus after the car began to accelerate on its own. The car reached speeds of 125 miles per hour before the Saylor family crashed, killing all four occupants. Three years later, Toyota admitted that it misled the public, and recalled 9.3 million vehicles worldwide.

Toyota built its brand on quality; quality assurance and quality guarantee was the basis of a bond of trust between the customer and Toyota. After that incident, Toyota´s focus was consistent with their philosophy; they solved the car problem to make their customers happy with the product. However, they never developed a communication campaign to re-gain the trust of the rest of the people that were potential customers before the scandal exploded.

Integrity is much more than just a moral value. Integrity has an economic value. Integrity is a relationship whose components are trustworthiness, so that the company makes sure they do everything correctly, and the customer trust. That relationship delivers economic value because boosts the capacity of selling products. As a result of the questionable crisis management in the Toyota scandal there was a dramatic impact on the automaker's sales and stock prices.

On the other hand, there have been cases where after a tragedy, the brand improved their public image. This is the case of the Air France Accident. Flight AF447 left Rio de Janeiro, Brazil on May 31th bound for Paris Charles de Gaulle airport. On board were 216 passengers and 12 crew members. During flight over the Atlantic the airplane entered a zone of stormy weather. An automatic message from the airplane was sent to the air traffic control centers and expressed that the electric circuit had failed. At this time the aircraft was far from the coast, and air traffic control centers in Brazil, Africa, Spain and France tried to contact the aircraft but did not succeed. On June 6th bodies of the passengers were found and parts of the wreckage were located.

On the day of the accident Pierre Henri Gourgeon, CEO of Air France held a press conference at Charles de Gaulle airport in Paris. After the accident, the Air France website was adopted to the crisis situation. The site showed less graphics and pictures than usual and instead of the normal booking engine on the first page visitors were given news about the crash and provided links for further information. In total Air France did 25 communications, including press releases and memos asking the press to respect the privacy of the relatives of the victims. The press releases are in both

English and Portuguese and from the first release there is information about the number of passengers onboard, a toll free number for further information and their apologies and condolences to the families. Additionally, in the Air France-KLM annual report from 2009/2010 there was given much attention to the accident of flight AF447 and as a direct result of this tragedy, Air France created the Independent Safety Review program.

When a crisis occurs, companies have to respond quickly in order to minimize damage done to stakeholders as a result of the crisis event, in order to minimize the negative effect on the firm‟s reputation and legitimacy (Hale et al., 2005; Stephens et al., 2005; Coombs & Holladay, 2007, 2002). Stakeholders, especially those as closely associated with the event as the friends and relatives of the victims, desire information about the extent and causes of the crisis in order to reduce the uncertainty regarding how to evaluate the event and how to attribute blame for it occurring (Stephens & Malone, 2009). However, since stakeholders evaluate how responsible the company is for the crisis and how well it was handled, there is an incentive for the firms to not release any information that could reflect negatively on the firm (Wester, 2009), so that stakeholders will not consider it to be illegitimate. This also highlights the importance of matching the firm‟s communication to stakeholders‟ expectations regarding the crisis situation, as per Coombs and Holladay‟s Situational Crisis Communication Theory (Coombs & Holladay, 2002). The damage a crisis can do to an organization´s reputation is dependent on crisis responsibility, response message strategies and intensifiers such as severity and earlier performance history. Attributed crisis responsibility depends primarily on the type of the crisis and the circumstances surrounding it, with stakeholders attributing more responsibility to intentional type events compared to accident cluster and more so compared to victim cluster type events (Coombs & Holladay, 2002).

In conclusion, authorities and organisations can limit the damage done to their reputation through their communication to population. Stakeholders expect communication that accommodates the needs of victims and their kin depending on attributed responsibility. Further, stakeholders expect more accommodating communication and admitting responsibility following severe crises like the three investigated above. As a result, stakeholders will likely expect message strategies like apologies, sympathy, offers to compensate victims and their kin, and making promises to take corrective action for events of this nature (Coombs & Holladay, 2002; Coombs, 2004).

Crises are usually highly visible in the media (Stephens et al., 2005; Nelkin, 1988) and media reports are typically the primary source of information regarding the crisis for those who are

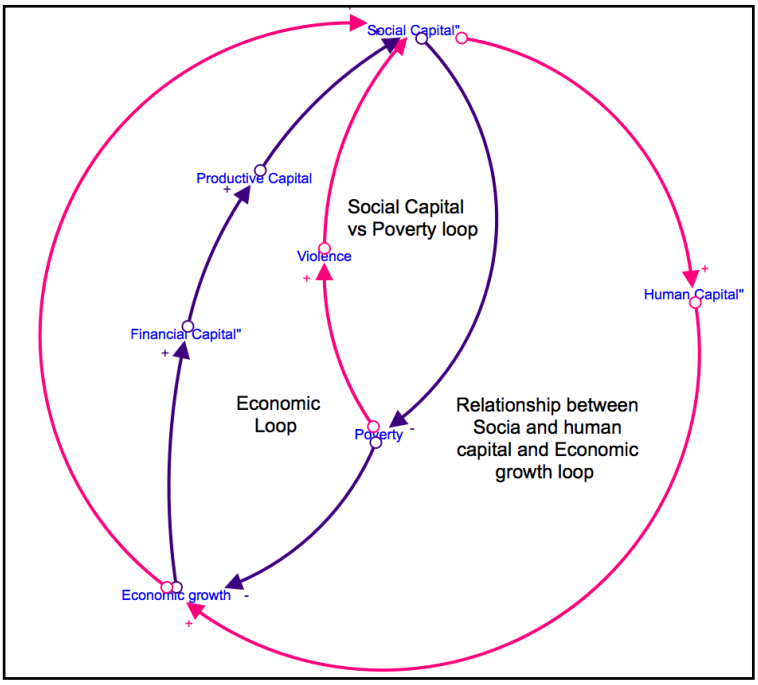

Figure 33: Causal Loop Diagram. The interaction between Social Capital, Human Capital, Financial Capital, Productive Capital and Poverty

not directly affected by it. As a result, the media has a large influence on the formation of people´s attitudes (Coombs, 2007; Nelkin, 1988), possibly for a long time. Media therefore becomes very important during and after a crisis, having great power over authorities and companies, who sometimes have to modify their speech based on the portrayal of publications. Since media reports have such a large impact on the attitudes of people, they can also serve as a way to gain insight into how other population groups perceive the crisis. Population´s "attribution of responsibility for the crisis is one of the largest factors influencing the effect on the organisation´s reputation and legitimacy" (McDonald et al., 2010).

Many of the policy measures developed previously, tackled the problem and were effective but failed on their approach. They failed in the interaction between the financial, human and social capital. All the cities mentioned above had the economic resources and the tools to implement those policies but did not realise the role of the community in the policy implementation.

The social capital is the dimension of assets concerned with households, networks and community. It has a very important role in setting the scene, and providing a facilitating environment. The goal of those policies was to improve the welfare of the city. But also to improve the economic situation or at least, not worsen it or loose money. Negative social capital, like lack of access, visualisation, communication to the problem or working on the social stigma, can have very negative effects on the development of any policy. The role of municipality is crucial in those urban contexts, but the

visualisation, explanation and communication of the intentions of the policies are basic in order to obtain cooperation from the community. Society has to be educated and citizens need to understand the effects of their actions. They have to be told what they can do in order to help other people and the communication channel needs to be accessible and easy to understand by everybody.

7.3 POLICY "RETURN HOME"

Policy "Return Home" is a strategy whose aim is to speed up the outflow of transients of Fort Collins. This policy, when applied with Policy1, reduces the transient population until a 18,11% more by 2022. However, although its high effectivity, this is a complementary policy that should be applied just in particular cases. As its name indicates, this policy has the intention of helping people return to a place they can call home. The goal is helping people to go where they could get the support or help from their closest relatives.

Transients receive that name due to their migrating patterns; moving from place to place within some weeks or even months. Some of them end up in Fort Collins because it is a nice stop on their way home, and, due to economical problems, they extend their stay more than what was initially planned.

Policy "Return Home" should not be popularised or an alternative for everyone. The aim of this policy is to help people get to their destination and reduce the expenses to the city at the same time. This should be an option just for those transients that are *trapped* in Fort Collins for a indeterminate time, and are totally dependent of social services. If someone is stucked in Fort Collins in such situation, that person will cost more money to the town than if the authorities help him or her with a bus ticket to go to their destination.

This policy is not made to get rid of anybody, but to help them getting somewhere where they can continue with their lives being helped by their relatives and without the dependency of social services.

If a policy like this was extended between population it could have the opposite effect; increasing the number of transients and creating a higher demand in order to get money to go somewhere. Therefore, in order to be have access to it, transients should fulfill two basic requirements;

1. Information of destination. Transients should say where are they going and who do they know in that place. The name or telephone of at least one of the persons they know there should be given to the authorities. All the information given should be verified before going ahead with the process.

2. Time in Fort Collins. This policy should not be applied on people who just came to the city since it could make other transients travel to Fort Collins just to be given a ticket to go to somewhere else. Therefore, a minimum time of at least 2 or 3 weeks should be considered.

In conclusion, this is a efficient complimentary policy that is beneficial both for the town and for the transients. It nonetheless can have the opposite effect if applied to everyone or if not explained properly to the general public, since it could be confused with "shipping people away". There was a myth in Fort Collins about a city fund which provided homeless or transient individuals one-way bus tickets out of town to move people out of the area. If the policy "Return Home" was implemented, it should be explained that it is an initiative for people who want to get somewhere else, not for local homeless. Local homeless need to be helped in order to get self sufficiency; they don't need to be sent anywhere else.

7.4 ABOUT REHABILITATION

Transiency is a social problem. The most important assumption underscoring contemporary sociological analyses of social problems- including understanding of vagrancy- is the reformist stance adopted towards the consequences of social problems (Cohen, 1974).

However, "rehabilitation" is difficult to understand and hard to achieve. Rehabilitate can mean different things; to reinstate, restore to former rights, privileges, rights, rank etc.; to clear the character of; to bring back into good condition, working order, prosperity; to make air, after disablement, for making a living or playing a part in the world. For those transients who have not formerly had status, rights and privileges, they can not have them restored. "Rehabilitation" in this case does not mean to "clear the character" but to adjust someones life to a non-vagrant lifestyle.

The main problem with rehabilitation is that people can not be *forced* to change their lifestyle; they have to come forward and be open to receive help from an agency or institution. In addition, both the transient and the agency need to have matching interests. The agency might be looking for a man with motivation to change his circumstances and can be suspicious of a person

merely looking for what might be seen as “a good rest”. On the other hand, the transient is usually likely to see his situation in simple terms i.e. needing accommodation, understanding and -possibly- help with his problems. The pressures are such that it is difficult for either party to accurately assess each other´s needs (Levine, 1979). There is an important question; does the rehabilitation process seek to achieve targets which are too difficult for a man to attain or- perhaps more to the point- which he might not want since he measures his progress by different criteria?

Whether or not a return to society is a desirable goal, it is a necessary one. Leading a more stable life is necessary because it implies belonging, relating to those around one in a mutually supportive way and growth within the mainstream of society. It is needed to understand by the society that the price that the transient has to pay for this return to the society is high for him. He most certainly will have to exercise more self discipline than the average citizen, he will be in situations perhaps for years where he is uncomfortable and unconfident, he will use an agency who might well be uncertain about how to advise him, about their relationship to him, possibly even under about their own views on the merits of the society in which we live. He will relapse and face rejection and think he has “arrived” and find that he has not (Levine, 1979). Therefore, it is very important not just the cooperation between the transient and the agency, but the participation of the entire society to integrate him.

Improvements in the position of minors in society almost always happen in small steps. A slight change un the small print of Government polity or a successful local initiative can often lead to significant changes in the status and conditions of the weak and the poor.

Regarding to the prioritization, in every single social policy the first attention goes primarily to children and elderly. That is a very important step since they constitute the weaker group. However, in the case of transients, it is important to understand that the larger group it is constituted by single adults. Therefore, the policy has to be implemented from the very beginning with all the population groups, regardless of their age, sex or condition.

It seems that the cardinal criterion of Government policies, has been to treat “single homeless people” as a separate, special group of people. It has been done the assumption not that there were sound economic and structural reasons for poor single people being and remaining homeless, but that their predicament must result from their personal, and in some cases, group pathology. Single homeless - or transient- poor people have thus been represented to local statutory authorities as people with pathological rather than economic problems (Beacock, 1979). When considering

transients, there is a big problem behind this statement. Transient individuals are highly resistant to using provision to which they feel a stigma is attached. If they accept getting help, they want to be served as individuals with problems rather than problem individuals. The fact that, although transients are not a homogeneous group, they face constant labelling and categorisation, criminalisation and rejection as undeserving, added to the extreme disadvantages described earlier, does not serve as fertile ground for organised pressure and self-help. Therefore, both support from the community and help to integration have to be an important part of the policy.

Three basic rights have to form the long-term objective of this approach: the right to decent housing when homeless, the right to a statutory minimum income, and equal civil rights along the rest of the community.

The mass media are an indispensable ingredient in the social policy process. The communication of transiency, of which they are a crucial element, may offer the key to unravelling the problem, and what begins as an attempt to understand vagrancy, may become a case study raising much larger issues about social problems and social policy generally.

A conventional way of analysing the development of a social problem like vagrancy, is in terms of the conversion of “personal troubles” into “public issues” (Timms, 1974). An alternative which takes less for granted and which may follow the actual process involved more closely, is to consider the way in which certain phenomena come to be conceived as a social problem - why it is therefore that certain activities, individuals, or locations, are identified as vagrancy. What we might call the public presentation of vagrancy provides the perspective to do this. It thus becomes possible to see why the phenomena are interpreted as they are, and what the significance and consequences are, both for them and for social policy (Beresford, 1979).

It is important to make this distinction between the phenomena and the social problem in which the transients are included. Archard identified a view of skid row as a psychological rather than a physical territory - a state of mind of skid rowers rather than their location (1975). If we are to accept such a psychic interpretation of this province of vagrancy perhaps it should be one that conceives of it not so much in the minds of its inhabitants as the product of the thinking of its formal definers.

Vagrancy is presented as a problem of people, not of conditions or social institutions. In a sense the concept of vagrancy already represents a personalising of the issues included in it. Transiency

comes to be presented through a narrow set of stereotypes that follow closely those of specialist accounts of the problem; of inadequates needing care and attention or sociopaths requiring restraint. Due to this social perception, it is crucial that media includes not just the problems created by transients but a consideration of background developments and the issues involved. For background features it must compete with a wide range of social concern and social services subjects that are likely to have a prior claim on the attention of media (Beresford, 1979). The social conception of transiency are both a cause and effect of the way the phenomena are presented. Therefore, improving the public presentation of transiency has to be a key part of the social policy to succeed with their integration in the society.

8 Conclusion

Transiency is a social phenomena that affects thousands of people. It is a social problem whose causes are broad and it is very difficult to affirm that a particular solution would work for everyone. Although vagrancy is a problem dominated by voluntary action, it is important to make the distinction between the phenomena and the social problem in which they are included, since transients are people. The complexity of the needs and difficulties of vagrants have to be taken in consideration along with the effects that they have in a society, when building any policy to address the problem.

The results of this work have been developed using the system dynamics method, since it allows to represent the inherent complex elements of this complicated phenomenon, simulate different scenarios and evaluate policy options. This thesis highlights the importance of attractiveness and suggests its reduction in order to reduce the growth of transient population. Simulations of the Fort Collins model show that a reduction of the relative attractiveness of Fort Collins perceived by transients would lead to a reduction of the transient population. Nonetheless, the results of the simulation are not accurate, and in real processes there are often involved feedback mechanisms that are not easily perceived.

Throughout this thesis it is developed a qualitative and quantitative research to build the causality of the processes derived of transiency, and it is suggested a strategy to improve the situation in Fort Collins. Understanding the fundamental processes of transiency and its effects is essential for policy makers in order to build a policy that corrects the deficiencies of a system. However, it is very difficult to represent those processes when specific data about transiency is not available. Therefore, it highly recommended to public administrations to develop a detailed categorisation of the individuals that compound the homeless group. Lastly, with this work it is not intended to give a precise, exact, absolute or accurate solution. The aim of this research is to give some insight about the processes that involve transiency and give an indicator for further research.

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APPENDIX A - MODEL EQUATIONS

Historical_Development_Transient_Population = GRAPH(TIME)

(2012,000, 244,0), (2013,000, 250,0), (2014,000, 289,0), (2015,000, 315,0)

Init_Non_Potential_transients = 10000

****

FoCo_Population_sector:

****

FoCo_Area = 122.1

Normal_Attractiveness_multiplier = GRAPH(Population_density)

(0,00, 0,674), (5,00, 1,200), (10,00, 1,450), (15,00, 1,550), (20,00, 1,450), (25,00, 1,200), (30,00, 0,550), (35,00, 0,200), (40,00, 0,100), (45,00, 0,050), (50,00, 0,000)

Normal_birth_rate = 0.012

normal_death_rate = 0.01

Normal_Inmigration_Rate = 0.012

Normal_outmigration_rate = 0.0018

perceived_attractiveness_related_with_crime = GRAPH(transient_derived_crimes)

(0,0, 1,000), (50,0, 1,000), (100,0, 0,983), (150,0, 0,937), (200,0, 0,834), (250,0, 0,600), (300,0, 0,406), (350,0, 0,274), (400,0, 0,160), (450,0, 0,057), (500,0, 0,000)

Percentage_population_growth = (Births+Inmigration-Deaths-Emigration)/Population

Population(t) = Population(t - dt) + (Inmigration + Births - Emigration - Deaths) * dt

INIT Population = 161000

INFLOWS:

Inmigration = Population*Normal_Inmigration_Rate*total_attractiveness_multiplier+Immigration_Rate_Transients

Births = Population*Normal_birth_rate

OUTFLOWS:

Emigration = Population*Normal_outmigration_rate*perceived_attractiveness_related_with_crime

Deaths = Population*normal_death_rate

Population_density = Population/FoCo_Area

total_attractiveness_multiplier = perceived_attractiveness_related_with_crime*Normal_Attractiveness_multiplier

****

Homeless_FoCo_Population:

****

Homeless_People(t) = Homeless_People(t - dt) + (People_becoming_homeless + People_moving_back_to_the_street - People_moving_into_Temporary_Housing) * dt

INIT Homeless_People = 0

INFLOWS:

People_becoming_homeless = People_at_Risk*percentage_of_pop_at_risk_that_becomes_homeless/ Time_needed_to_become_homeless

People_moving_back_to_the_street = People_in_Temporary_Housing*percentage_of_people_moving_back_to_the_streets/ maximum_allowed_time_in_shelter

OUTFLOWS:

People_moving_into_Temporary_Housing =
(Homeless_People*Percentage_of_people_moving_into_Temporary_Housing+Transients_in_Fort_
Collins*percentage_of_transients_that_use_temporary_housing)/
time_needed_to_move_into_Temporary_Housing

maximum_allowed_time_in_shelter = 2

People_at_Risk(t) = People_at_Risk(t - dt) + (People_becoming_at_risk -
People_becoming_homeless - people_getting_out_of_risk) * dt

INIT People_at_Risk = 0

INFLOWS:

People_becoming_at_risk =
Population*percentage_of_resident_population_of_FoCo_at_risk_of_becoming_homeless/
Time_needed_to_be_at_risk_of_becoming_homeless

OUTFLOWS:

People_becoming_homeless =
People_at_Risk*percentage_of_pop_at_risk_that_becomes_homeless/
Time_needed_to_become_homeless

people_getting_out_of_risk = People_at_Risk*percentage_of_people_getting_out_of_risk/
time_needed_to_get_out_of_risk

People_in_Permanent_Housing(t) = People_in_Permanent_Housing(t - dt) +
(People_moving_into_permanent_housing) * dt

INIT People_in_Permanent_Housing = 0

INFLOWS:

People_moving_into_permanent_housing =
Homeless_People*percentage_of_people_moving_into_permanent_housing/
time_needed_to_move_into_permanent_housing

People_in_Temporary_Housing(t) = People_in_Temporary_Housing(t - dt) +
(People_moving_into_Temporary_Housing - People_moving_back_to_the_street -
People_moving_into_permanent_housing) * dt

INIT People_in_Temporary_Housing = 140

INFLOWS:

People_moving_into_Temporary_Housing =
(Homeless_People*Percentage_of_people_moving_into_Temporary_Housing+Transients_in_Fort_
Collins*percentage_of_transients_that_use_temporary_housing)/
time_needed_to_move_into_Temporary_Housing

OUTFLOWS:

People_moving_back_to_the_street =
People_in_Temporary_Housing*percentage_of_people_moving_back_to_the_streets/
maximum_allowed_time_in_shelter

People_moving_into_permanent_housing =
Homeless_People*percentage_of_people_moving_into_permanent_housing/
time_needed_to_move_into_permanent_housing

percentage_of_people_getting_out_of_risk = 0.9

percentage_of_people_moving_back_to_the_streets = 0.96

percentage_of_people_moving_into_permanent_housing = 0.01

Percentage_of_people_moving_into_Temporary_Housing = 0.04

percentage_of_pop_at_risk_that_becomes_homeless = 0.1

percentage_of_resident_population_of_FoCo_at_risk_of_becoming_homeless = 0.01

percentage_of_transients_that_use_temporary_housing = 0.6

Time_needed_to_be_at_risk_of_becoming_homeless = 2

Time_needed_to_become_homeless = 1

time_needed_to_get_out_of_risk = 1

time_needed_to_move_into_permanent_housing = 12

time_needed_to_move_into_Temporary_Housing = 3

****

Shelter_sector:

****

Attractiveness_of_sheltering_multiplier = GRAPH(Shelter_users_to_shelter_ratio)

(0,000, 0,046), (0,200, 0,240), (0,400, 0,3485), (0,600, 0,594), (0,800, 0,720), (1,000, 0,800), (1,200, 1,040), (1,400, 1,257), (1,600, 1,451), (1,800, 1,520), (2,000, 1,600)

construction_time = 1

demolition_time = 10

land_fraction_occupied = (shelters*land_per_shelter)/FoCo_Area

land_per_shelter = 1/4

shelter_availability = GRAPH(Shelter_users_to_shelter_ratio)

(0,000, 1,979), (0,200, 1,908), (0,400, 1,845), (0,600, 1,704), (0,800, 1,092), (1,000, 0,585), (1,200, 0,229), (1,400, 0,114), (1,600, 0,000), (1,800, 0,000), (2,000, 0,000)

shelter_construction_multiplier = shelter_availability*"shelter-land_occupation"

shelter_construction_normal_rate = 0.01

shelter_demolition_normal_rate = 0.01

shelter_size = 20

Shelter_users_to_shelter_ratio = People_in_Temporary_Housing/(shelters*shelter_size)

"shelter-land_occupation" = GRAPH(land_fraction_occupied)

(0,000, 0,400), (0,100, 0,700), (0,200, 1,000), (0,300, 1,250), (0,400, 1,450), (0,500, 1,500), (0,600, 1,500), (0,700, 1,400), (0,800, 1,000), (0,900, 0,500), (1,000, 0,000)

shelters(t) = shelters(t - dt) + (shelter_construction - shelter_demolition) * dt

INIT shelters = 8

INFLOWS:

shelter_construction = shelters*shelter_construction_normal_rate*shelter_construction_multiplier/construction_time

OUTFLOWS:

shelter_demolition = shelters*shelter_demolition_normal_rate/demolition_time

****

"Transient-Related_Problems":

****

adjustment_arresting_time = 1

adjustment_time_of_perception = 1

arrested_transients_waiting_for_sentence(t) = arrested_transients_waiting_for_sentence(t - dt) + (transients_getting_arrested - arrested_who_go_to_jail - dismissed_transients) * dt

INIT arrested_transients_waiting_for_sentence = 20

INFLOWS:

transients_getting_arrested = transient_derived_crimes*arresting_rate/adjustment_arresting_time

OUTFLOWS:

arrested_who_go_to_jail = arrested_transients_waiting_for_sentence/delay_in_going_to_jail

dismissed_transients = arrested_transients_waiting_for_sentence/
delay_time_of_getting_dismissed

arresting_rate =
normal_percentage_of_transient_population_that_commit_crimes_getting_arrested*effect_of_worked_hours_on_percentage_of_transient_population_getting_arrested

average_delay_time_of_changing_the_perception = 7

average_effective_sentence = 0.5

average_time_to_adopt_idea = 1

change_step = IF policy<0 THEN 1*STEP(step_value, 2017) ELSE 0

delay_in_going_to_jail = 0.75

delay_of_effect = 1

delay_time_of_getting_dismissed = 0.5

desired_perceived_criminality_produced_by_transients =
Perceived_crimes_produced_by_transients*people´s_external_pressures

diffusion_of_ideas_rate = Susceptible_to_get_information/
(Population-1)*total_shares_of_idea_per_year

effect_of_people_on_sensitivity_of_perceived_crimes =
GRAPH(People_who_adopt_a_negative_opinion_about_the_situation_with_transients)

(0, 0,931), (33333,3333333, 0,949), (66666,6666667, 0,949), (100000, 0,926), (133333,333333, 0,800), (166666,666667, 0,657), (200000, 0,383)

effect_of_politial_response_to_social_pressure_on_citizens = IF worked_hours_per_week>49 THEN 1 ELSE 2

Effect_of_pressure_on_working_hours = GRAPH(pressure_to_expand_police_control)

(0,000, 1,0000), (0,500, 1,0000), (1,000, 1,0036), (1,500, 1,0250), (2,000, 1,0571), (2,500, 1,0964), (3,000, 1,1536), (3,500, 1,2250), (4,000, 1,3357), (4,500, 1,4429), (5,000, 1,5000)

effect_of_worked_hours_on_percentage_of_transient_population_getting_arrested = GRAPH(worked_hours_per_week)

(0,000, 0,000), (0,666666666667, 0,309), (1,33333333333, 0,811), (2,000, 1,303)

Exposed_to_information(t) = Exposed_to_information(t - dt) + (becoming_exposed - becoming_infected) * dt

INIT Exposed_to_information = 10

INFLOWS:

becoming_exposed = probability_of_transfer_idea*diffusion_of_ideas_rate

OUTFLOWS:

becoming_infected = Exposed_to_information/average_time_to_adopt_idea

fraction_of_transients_committing_crimes = 0.6

normal_hours_per_week_per_police_officer = 48

normal_percentage_of_transient_population_that_commit_crimes_getting_arrested = 0.6

number_of_people_sharing_their_opinion_with_per_person_per_year = 15

people´s_external_pressures = effect_of_people_on_sensitivity_of_perceived_crimes/ delay_of_effect

People_who_adopt_a_negative_opinion_about_the_situation_with_transients(t) = People_who_adopt_a_negative_opinion_about_the_situation_with_transients(t - dt) + (becoming_infected - recovering) * dt

INIT People_who_adopt_a_negative_opinion_about_the_situation_with_transients = 0

INFLOWS:

becoming_infected = Exposed_to_information/average_time_to_adopt_idea

OUTFLOWS:

recovering = SMTHN((People_who_adopt_a_negative_opinion_about_the_situation_with_transients*effect_of_

politial_response_to_social_pressure_on_citizens/
average_delay_time_of_changing_the_perception),
average_delay_time_of_changing_the_perception, 7, 2016)

People_who_change_to_a_positive_opinion_again(t) =
People_who_change_to_a_positive_opinion_again(t - dt) + (recovering) * dt

INIT People_who_change_to_a_positive_opinion_again = 0

INFLOWS:

recovering =
SMTHN((People_who_adopt_a_negative_opinion_about_the_situation_with_transients*effect_of_
politial_response_to_social_pressure_on_citizens/
average_delay_time_of_changing_the_perception),
average_delay_time_of_changing_the_perception, 7, 2016)

Perceived_crimes_produced_by_transients(t) = Perceived_crimes_produced_by_transients(t - dt) +
(- change_in_perceived_crimes_produced_by_transients) * dt

INIT Perceived_crimes_produced_by_transients = transient_derived_crimes

OUTFLOWS:

change_in_perceived_crimes_produced_by_transients =
((desired_perceived_criminality_produced_by_transients-
Perceived_crimes_produced_by_transients)/adjustment_time_of_perception)+change_step

pressure_to_expand_police_control = Perceived_crimes_produced_by_transients/
transient_derived_crimes

probability_of_transfer_idea = 0.9

step_value = 100

Susceptible_to_get_information(t) = Susceptible_to_get_information(t - dt) + (-
becoming_exposed) * dt

INIT Susceptible_to_get_information = Population-Exposed_to_information

OUTFLOWS:

becoming_exposed = probability_of_transfer_idea*diffusion_of_ideas_rate

total_shares_of_idea_per_year = (Exposed_to_information+People_who_adopt_a_negative_opinion_about_the_situation_with_transients)*number_of_people_sharing_their_opinion_with_per_person_per_year

transient_derived_crimes = Transients_in_Fort_Collins*fraction_of_transients_committing_crimes

transient_jail_population(t) = transient_jail_population(t - dt) + (arrested_who_go_to_jail - released) * dt

INIT transient_jail_population = 150

INFLOWS:

arrested_who_go_to_jail = arrested_transients_waiting_for_sentence/delay_in_going_to_jail

OUTFLOWS:

released = transient_jail_population/average_effective_sentence

worked_hours_per_week = Effect_of_pressure_on_working_hours*normal_hours_per_week_per_police_officer

****

Word_of_mouth_effect:

****

average_stay_in_pool = 1

avg_stay_in_potential_pool = 1

avg_time_to_become_potential = 1

avg_time_to_emigrate = 0.2+"Policy_\"Return_Home\""

avg_time_to_immigrate = 0.4

FoCo_Transient_Pop_density = Transients_in_Fort_Collins/FoCo_Area

Fraction_transient_emigration_rate = 0.02

Fraction_transient_immigration_rate = 0.0166

net_fractional_growth_rate = 0.05

non_potential_fraction = Non_Potential_Transients/
total_population_at_risk_of_becoming_transient

Non_Potential_Transients(t) = Non_Potential_Transients(t - dt) + (Net_Growth_Rate +
Departures_From_Potential_Pool - Additions_To_Potential_Pool) * dt

INIT Non_Potential_Transients = Init_Non_Potential_transients

INFLOWS:

Net_Growth_Rate =
total_population_at_risk_of_becoming_transient*net_fractional_growth_rate

Departures_From_Potential_Pool = Potential_Transients/average_stay_in_pool

OUTFLOWS:

Additions_To_Potential_Pool =
((opportunity_spreading*probability_of_becoming_potential_transient+Departures_From_Potential
_Pool)/avg_time_to_become_potential*avg_stay_in_potential_pool)

opportunity_spreading = non_potential_fraction*total_shares_by_potential_transients

P_Return_Home_value = -0.1

P_Return_time = 2017

P1_value = -2

policy = Policy1_Switch*STEP(P1_value, 2017)

"Policy_\"Return_Home\"" = Policy_Return_Home_Switch*STEP(P_Return_Home_value,
P_Return_time)

Policy_Return_Home_Switch = 1

Policy1_Switch = 1

Potential_Transients(t) = Potential_Transients(t - dt) + (Additions_To_Potential_Pool + Emigration_Rate_Transients - Departures_From_Potential_Pool - Immigration_Rate_Transients) * dt

INIT Potential_Transients = 2000

INFLOWS:

Additions_To_Potential_Pool = ((opportunity_spreading*probability_of_becoming_potential_transient+Departures_From_Potential_Pool)/avg_time_to_become_potential*avg_stay_in_potential_pool)

Emigration_Rate_Transients = Transients_in_Fort_Collins*Fraction_transient_emigration_rate/avg_time_to_emigrate

OUTFLOWS:

Departures_From_Potential_Pool = Potential_Transients/average_stay_in_pool

Immigration_Rate_Transients = (Potential_Transients*Fraction_transient_immigration_rate*Total_Transient_Attractiveness_Multiplier)/avg_time_to_immigrate

probability_of_becoming_potential_transient = 0.02

sharing_frequency = GRAPH(Potential_Transients*Total_Transient_Attractiveness_Multiplier)

(0, 0,00), (129,411764706, 0,15), (258,823529412, 0,15), (388,235294118, 0,15), (517,647058824, 0,15), (647,058823529, 0,15), (776,470588235, 0,15), (905,882352941, 0,15), (1035,29411765, 0,15), (1164,70588235, 0,15), (1294,11764706, 0,15), (1423,52941176, 0,15), (1552,94117647, 0,15), (1682,35294118, 0,15), (1811,76470588, 0,15), (1941,17647059, 0,15), (2070,58823529, 0,15), (2200, 0,15)

total_population_at_risk_of_becoming_transient = Non_Potential_Transients+Potential_Transients

total_shares_by_potential_transients = (Potential_Transients*sharing_frequency)+ (Potential_Transients*sharing_frequency*10)

Total_Transient_Attractiveness_Multiplier =
Transient_Attractiveness_multiplier*Attractiveness_of_sheltering_multiplier+policy

Transient_Attractiveness_multiplier = GRAPH(FoCo_Transient_Pop_density)

(0,00, 0,743), (5,00, 1,040), (10,00, 1,189), (15,00, 1,291), (20,00, 1,257), (25,00, 1,097), (30,00, 0,550), (35,00, 0,200), (40,00, 0,100), (45,00, 0,050), (50,00, 0,000)

Transients_in_Fort_Collins(t) = Transients_in_Fort_Collins(t - dt) + (Immigration_Rate_Transients - Emigration_Rate_Transients) * dt

INIT Transients_in_Fort_Collins = 244

INFLOWS:

Immigration_Rate_Transients =
(Potential_Transients*Fraction_transient_immigration_rate*Total_Transient_Attractiveness_Multiplier)/avg_time_to_immigrate

OUTFLOWS:

Emigration_Rate_Transients =
Transients_in_Fort_Collins*Fraction_transient_emigration_rate/avg_time_to_emigrate

{ The model has 129 (129) variables (array expansion in parens).

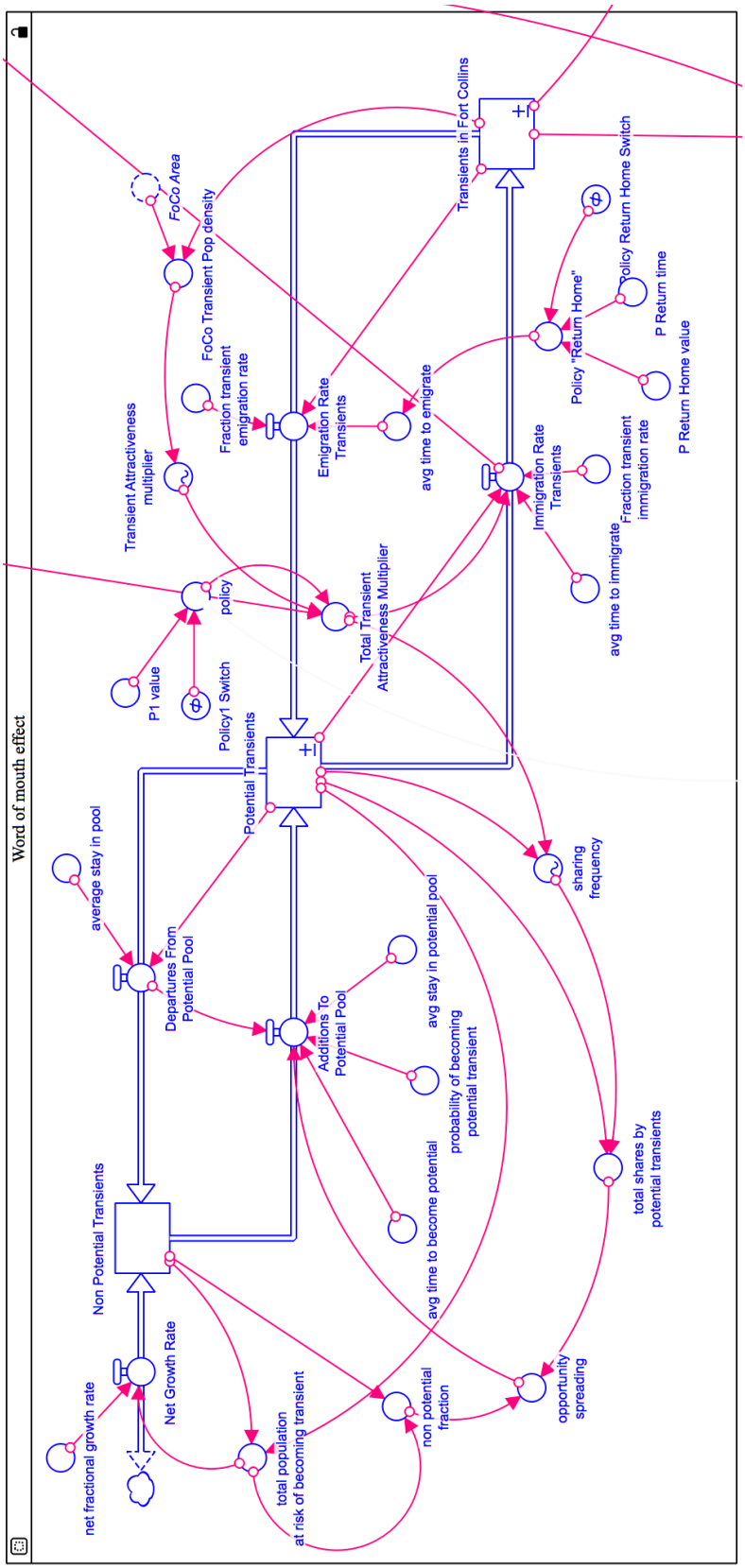
In root model and 0 additional modules with 5 sectors.

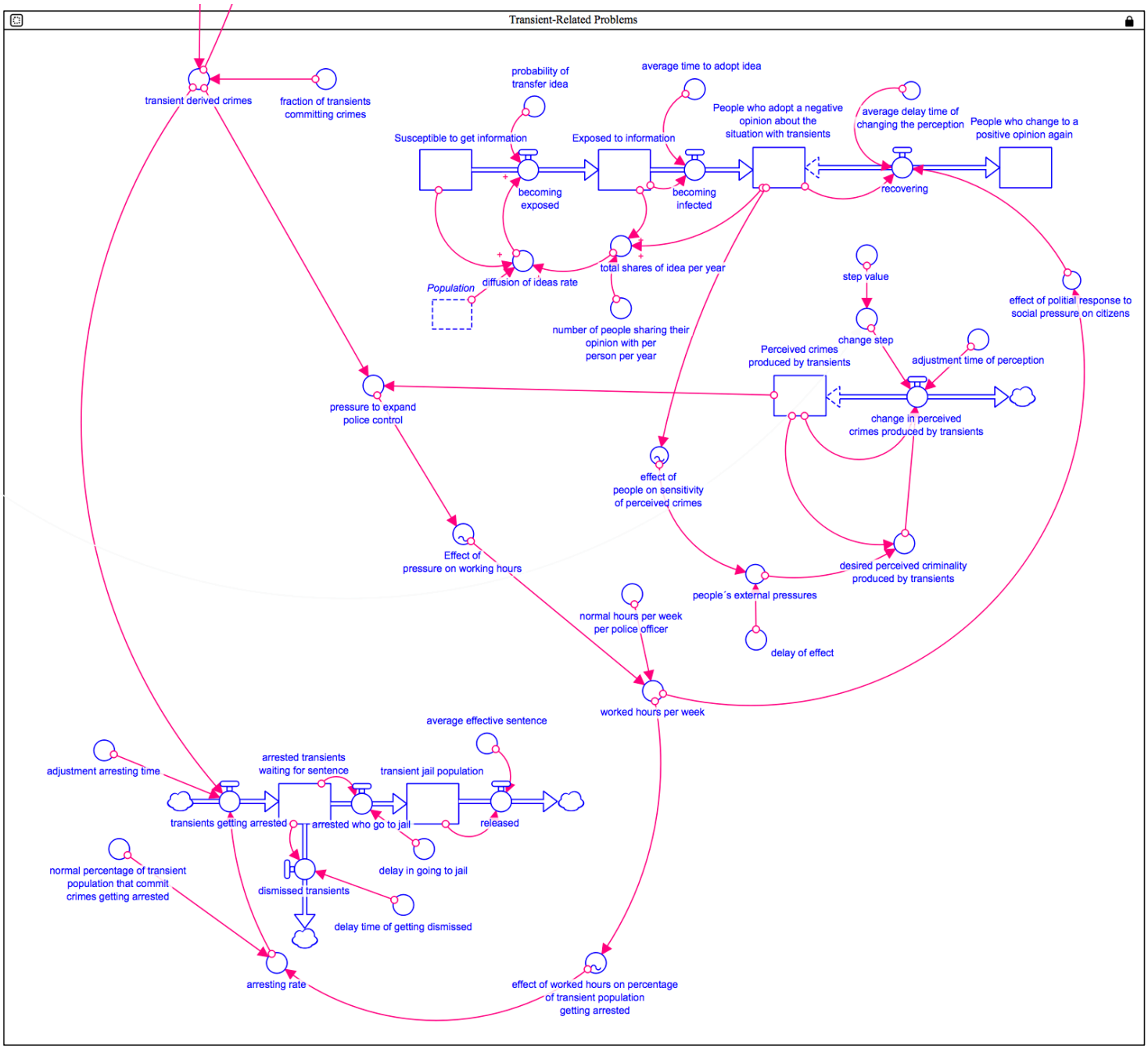
Stocks: 16 (16) Flows: 25 (25) Converters: 88 (88)

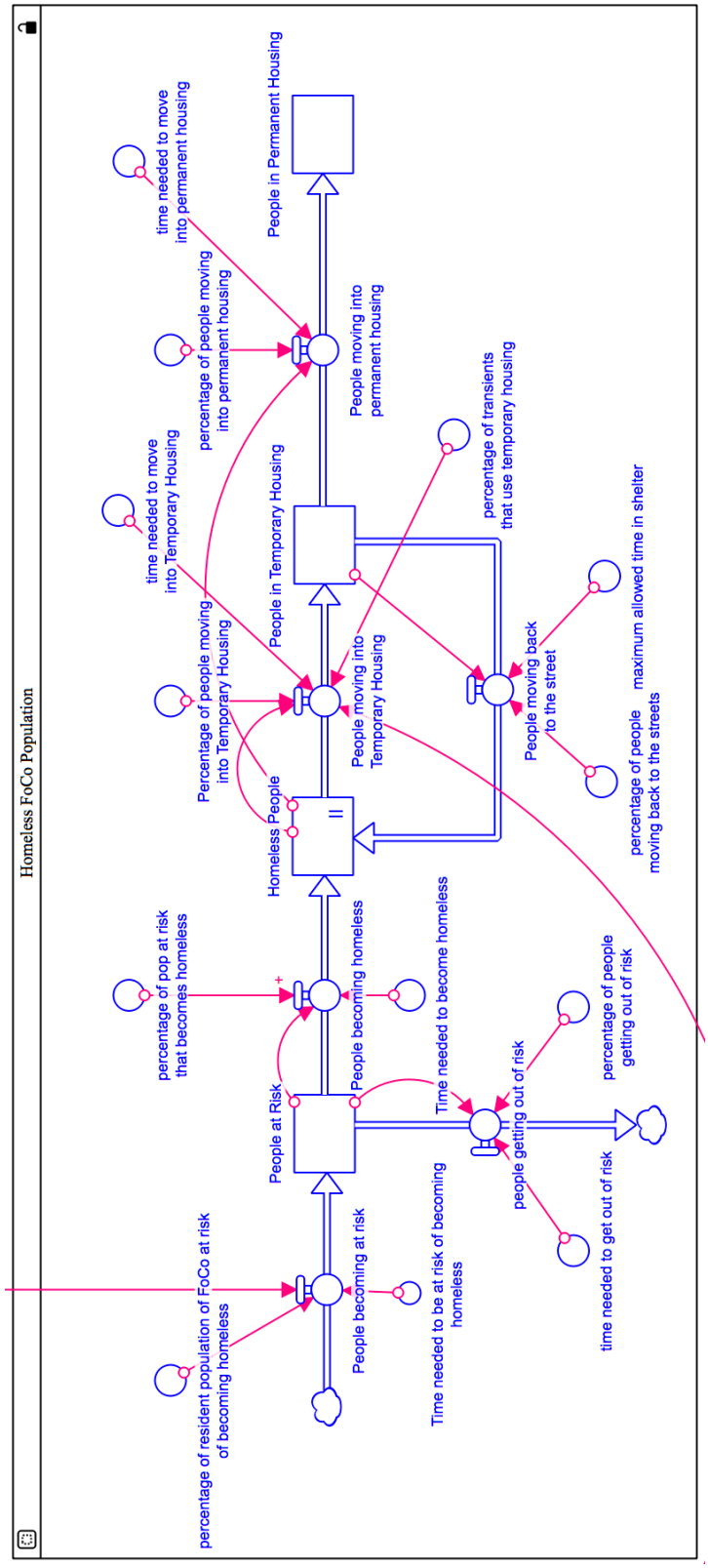
Constants: 52 (52) Equations: 61 (61) Graphicals: 11 (11)

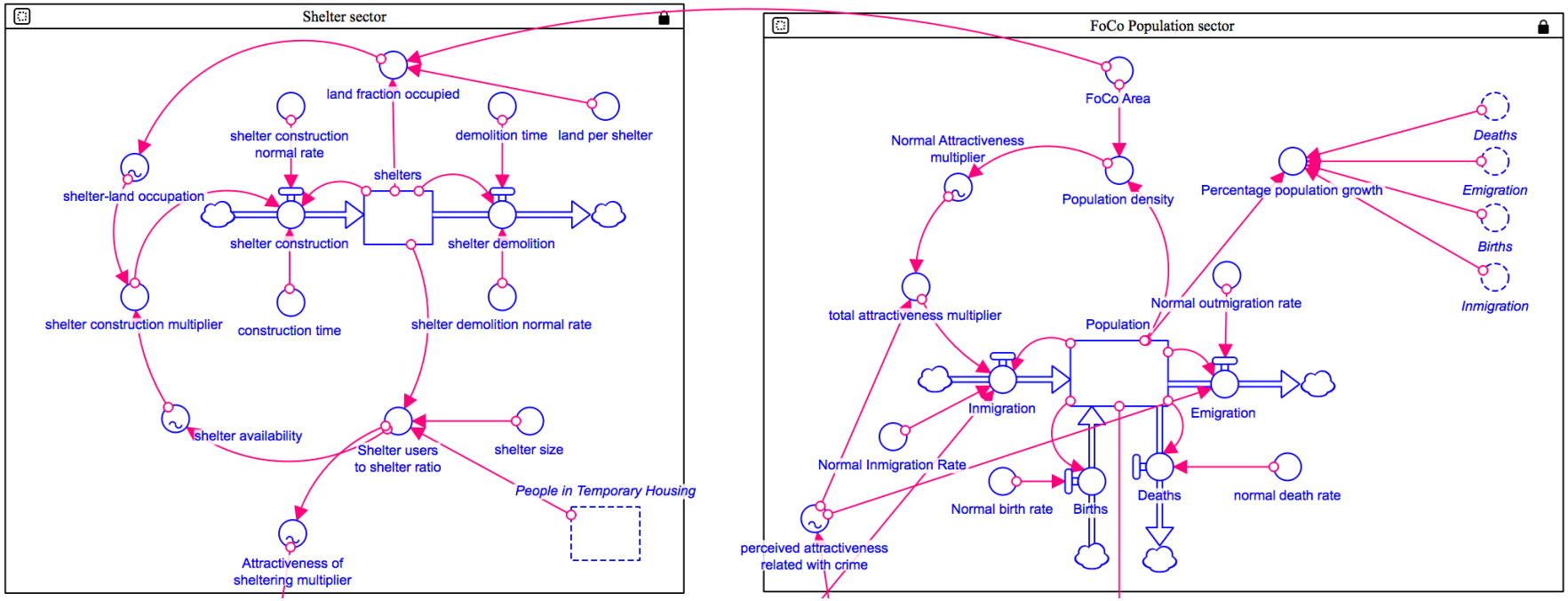
There are also 18 expanded macro variables.

APPENDIX B - MODEL SECTORS




Transient-Related Problems
transient derived crimes
fraction of transients committing crimes
probability of transfer idea
average time to adopt idea
Susceptible to get information
Exposed to information
People who adopt a negative opinion about the situation with transients
average delay time of changing the perception
People who change to a positive opinion again
becoming exposed
becoming infected
recovering
total shares of idea per year
diffusion of ideas rate
Population
number of people sharing their opinion with per person per year
step value
change step
effect of politial response to social pressure on citizens
Perceived crimes produced by transients
adjustment time of perception
change in perceived crimes produced by transients
pressure to expand police control
effect of people on sensitivity of perceived crimes
Effect of pressure on working hours
desired perceived criminality produced by transients
people´s external pressures
delay of effect
normal hours per week per police officer
worked hours per week
average effective sentence
adjustment arresting time
arrested transients waiting for sentence
transient jail population
transients getting arrested
arrested who go to jail
released
delay in going to jail
normal percentage of transient population that commit crimes getting arrested
dismissed transients
delay time of getting dismissed
arresting rate
effect of worked hours on percentage of transient population getting arrested


Homeless FoCo Population
People in Permanent Housing
time needed to move into permanent housing
percentage of people moving into permanent housing
People moving into permanent housing
People in Temporary Housing
time needed to move into Temporary Housing
percentage of transients that use temporary housing
Percentage of people moving into Temporary Housing
People moving into Temporary Housing
People moving back to the street
maximum allowed time in shelter
percentage of people moving back to the streets
Homeless People
percentage of pop at risk that becomes homeless
People becoming homeless
Time needed to become homeless
People at Risk
percentage of people getting out of risk
people getting out of risk
time needed to get out of risk
percentage of resident population of FoCo at risk of becoming homeless
People becoming at risk
Time needed to be at risk of becoming homeless


Shelter sector
land fraction occupied
shelter construction normal rate
demolition time
land per shelter
shelters
shelter-land occupation
shelter construction
shelter demolition
shelter construction multiplier
construction time
shelter demolition normal rate
shelter availability
Shelter users to shelter ratio
shelter size
People in Temporary Housing
Attractiveness of sheltering multiplier
FoCo Population sector
FoCo Area
Normal Attractiveness multiplier
Population density
Percentage population growth
Deaths
Emigration
Births
Inmigration
total attractiveness multiplier
Population
Normal outmigration rate
Inmigration
Emigration
Normal Inmigration Rate
Normal birth rate
Births
Deaths
normal death rate
perceived attractiveness related with crime