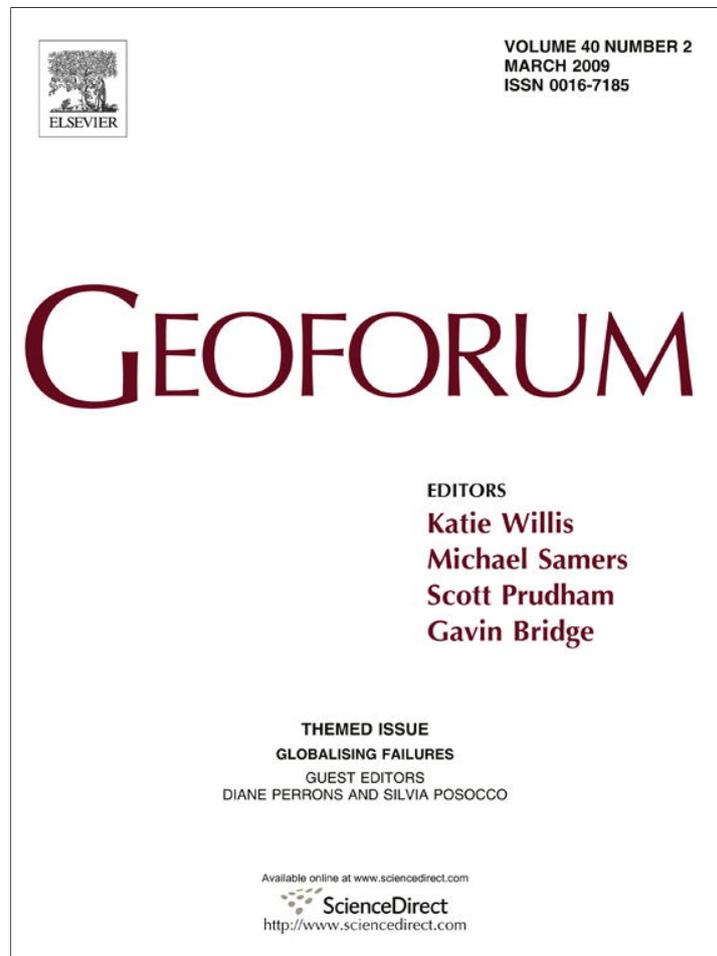


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The ideology behind the technology – Chilean microentrepreneurs and public ICT policies

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ABSTRACT

Digital divides are differences in access to information and communication technologies (ICTs) which tend to reflect the social and regional inequalities between and within countries. This paper presents a case study from Chile, which is among the leaders in Latin America both in levels of e-readiness and in social and regional inequality. The Chilean state's ICT policies are situated within the "Third Way" approach of the centre-left government, reflecting the tensions between a pro-active and positive view of neoliberal globalisation, and state social programmes to support poorer sectors of society.

The paper presents a multi-level analysis of two elements of Chilean ICT policy: *Chilecompra*, an online public e-procurement system aimed at creating transparent and competitive transactions in line with neoliberal economic theory, and *Red Comunitaria*, a network of Community Information Centres which offer free internet access and training to individuals, including microentrepreneurs. Interviews were conducted at the national, regional and local level. Findings were that the Community Information Centres (*telecentros*) had indeed furthered digital inclusion while in the meantime the shift to e-procurement had excluded many microentrepreneurs who had not registered with the system of *Chilecompra*. The larger of the local enterprises had registered but were having difficulties competing online with bigger companies located in the regional and national capitals.

The paper argues that while both state policies see themselves as successes, the political objectives underlying the technology mirror the Chilean government's struggle to simultaneously embrace neoliberal globalisation while working towards greater social and regional cohesion. At the local level there is evidence of the failure to reconcile the two approaches which may be indicative of a more general tension between these goals.

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1. Introduction

Proponents of the neoliberal model of globalisation have argued that the integration of economic actors into trade flows will lead to their greater prosperity. The development and diffusion of new of information and communication technologies (ICTs) and the internet in particular, has been suggested as a tool to allow more economic actors to participate in markets. In the mid-1990s, the hyperbolic language of the early literature on "Information and Communication Technology for Development" (ICT4D), declared that if developing countries were to become part of the "Global Village", then their economies might be able to "leapfrog" (Davison et al., 2000) earlier phases of industrial development and move more directly towards becoming knowledge-based economies whose enterprises could compete internationally. On the other hand, debates around "digital divides" focus on differences of access to ICTs between countries and

within societies. They bring into focus both the potential and the possibly exclusionary effects of ICTs. Many national governments have drawn up ICT policies to foster ICT-enabled economic development and minimise digital divides within their societies. This paper analyses the effect that the Chilean state ICT policies had for some of the most disadvantaged economic actors: microentrepreneurs in a rural town.

Over the last decade, the Chilean centre-left government under Ricardo Lagos (president 2000–2006) has been very pro-active in introducing ICT policies as a means to further both its generally neoliberal economic agenda embracing economic globalisation and its programmes to combat poverty and social exclusion. This paper presents part of the findings from an in-depth study which combined an analysis of Chilean ICT policies and programmes at the national level with ethnographic fieldwork at the local level. The ethnographic work explored the effects two key programmes from the national ICT policy agenda had on microentrepreneurs in a particular locality in rural Southern Chile. The two programmes were *Chilecompra*, an online public e-procurement system aimed at creating transparent and efficient transactions and

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Red Comunitaria, a network of Community Information Centres which offered free internet access and training to individuals, including microentrepreneurs.

The fieldwork focused on microentrepreneurs, since they play a key role in employment provision for poorer sectors of Chilean society and are therefore a target group for many state interventions. The research was guided by both a meta-level approach to development, and an analysis of the particular policy objectives of the Chilean state in the area of ICT and local economic development. Based on the empirical work, this paper shows that even though both ICT programmes achieved overall success by their own standards, microentrepreneurs' choices continued to be limited by structural disadvantages. Some microentrepreneurs struggled to achieve access to ICTs and all had difficulties competing with bigger companies from larger towns in the online market place of the e-procurement system. It is thus argued that microentrepreneurs face structural disadvantages which the state ICT policies fail to address. This failure is linked to the inherent tensions between the Chilean government's neoliberal economic policies and its goal to decrease social and regional inequality.

This paper is structured in eight parts. The following, second section will discuss the theoretical understanding of development underlying the research. In the third section, this model of development will be related to ICTs. Part four will lay out the methodology and part five will explain the particular context of technological change and state policies in Chile, a country enjoying stable growth but also suffering from high regional and social inequality. After this, in part six, findings from an in-depth case study from Southern Chile will be presented. Part seven will discuss the findings and show how the outcomes of the ICT strategies unearthed in the case study can be explained by tracing them back to the underlying policy objectives. The concluding section contextualises the research within wider processes of globalisation and calls for further critical work on the social, economic and political impact of ICTs. In particular, it is argued that the ideological underpinnings of seemingly neutral ICT policies need to be exposed to allow for a transparent political debate on the kind of development ICTs are intended to promote.

2. Amartya Sen's capability approach, empowerment and local economic development

The research approach was largely inductive, but framed in a number of theoretical concepts which illuminated particular aspects of the case study. Particularly vital in this context was Amartya Sen's concept of development as freedom to choose, which is useful in identifying ICTs' contribution to development: by making information available and facilitating interaction, ICTs can give individuals access to more choices, and thus can be seen as contributing to development.

The fieldwork was framed by the capabilities approach developed by Amartya Sen (Sen, 1980, 1984, 1992, 1999) According to Sen's definition, development is "a process of expanding the real freedoms that people enjoy to lead the lives they have reason to value" (Sen, 1999, p. 3). Development is the freedom of choice in the personal, the social, the economic and the political sphere. In Sen's approach, functionings are the various things a person may value doing or being, and a person's capability refers to the alternative combinations of functionings that are feasible for her to achieve (Sen, 1999, p. 75). The focus of development thus becomes increasing a person's capability set, or her substantive freedom to lead the life she values.

Within his paradigm of "development as freedom to choose", Sen sets up an alternative to growth-focused approaches to development by suggesting a way between enthusiasm for growth and

market-driven competitiveness on the one hand and social concern for equal opportunity on the other. Sen's approach was chosen for this research because firstly, in contrast to growth-focused definitions of development, it assigns economic development a role, not as an end in itself, but as a potential means to increased human freedom to choose. Secondly, Sen's approach offers a way of thinking which focuses on disadvantaged individuals while recognising their own agency.

Building on this conceptualisation of development as freedom to choose, the fieldwork examined the extent to which structural disadvantage undermined access to choice. Sen's work has been criticised for not paying sufficient attention to social constraints (Koggel, 2003) and to power (Hill, 2003). While it is true that Sen does speak less explicitly about structural constraints, these are in fact evident in the distinction that he draws between functionings and capabilities. Furthermore, and helpful for this research, Sen's work has inspired work by other scholars (for example Nussbaum, 2000; Alkire, 2002; Clark, 2002; Robeyns, 2003) who have aimed to operationalise the capabilities approach. In doing so, some (e.g. Alsop and Heinsohn, 2005) have put more explicit emphasis on structural constraints and on issues of power.

To reiterate, the way individuals', particularly microentrepreneurs' power to make choices is affected by state ICT policies is examined in this research. To this end, the concept of empowerment was used, which originated in work on gender relations and community participation (e.g. Moser, 1991; Van Eyken, 1991) and has been increasingly discussed in development studies (e.g., Friedmann, 1992; Craig and Mayo, 1995; Rowlands, 1997; Kabere, 1999; Oakley and Clayton, 2000; Moore, 2001; Bebbington et al., 2006). From this literature, particularly relevant aspects for this piece of research are firstly, the conceptualisation of the nature of power and secondly, of actors in empowerment processes.

Van Eyken (1991) sees power primarily as control over resources, while Moser (1991) widens this perspective to capture people's access to material and non-material resources which will enable them to make life choices. This view is closely linked to Sen's approach of development as people's freedom to choose the lives they have reason to value. While there is only limited mention of conflicts over power in Sen's work, issues of power distribution and related conflicts feature prominently in the literature on empowerment. Craig and Mayo differentiate between notions of power as a zero-sum or a variable sum game (Craig and Mayo, 1995). In a variable sum game, powerless groups or individuals could gain power without others losing any, while in a zero-sum game, one group or individual can only gain power at the expense of others. The dynamic in any given situation will depend on the nature of the resources the power is being used to control. For instance, the distribution of land within a given territory will amount to a zero-sum game, while non-material resources such as self-confidence or political awareness may be seen as expandable.

In this context, it is intriguing to consider the characteristics of information as a resource. On the one hand, raw information is becoming, due in large parts to new technologies, more easily replicable and diffusible. Thus in principle its acquisition could be a variable sum game. However, access to information is the first step to knowledge acquisition, the process of filtering and transforming information into meaningful material. Oakley points out the key role that knowledge plays as both a source for power and a means for its acquisition (Oakley, 2001, p. 15). In the context of entrepreneurial activity, knowledge advantages can translate into economic advantage and improved livelihoods. Thus the powerful have an interest in restricting access to information, to preserve their own privileged position. ICTs, as access points and distribution networks, are thus implicated in the power dynamics related to information and knowledge.

Access to and distribution for information can be greatly facilitated by ICTs, and this in turn can lead to improved processes of decision-making. It is then key to identify who needs access to ICTs in order to increase their chances of making effective choices. When considering the actors in these struggles for empowerment, Mayo and Craig (1995, p. 16) speak about “collective community and class conscientisation”. Their interpretation is one of collective political struggle between groups of powerful and powerless people, in which the powerless challenge the powerful and transform social reality. While this perspective clearly identifies imbalance of power as a problem and the potential of collective action to challenge it, it runs the risk of overemphasizing class commonality over individual choice of what constitutes “the good life”. One of the ways to manage this tension would be a process of defining the goals of collective action in a way which allows individuals to debate their perspectives, hold their specific viewpoints and identify where there are shared individual interests best served by collective action.

In contrast to Craig and Mayo's class-based view of empowerment, Friedman's work on empowerment is concerned with the balance of power between state, business and civil society. To him, the “community”, as the sum of households living on a particular territory, is key to the analysis.

Two broad conditions influence a community's control over its life space: the state's accountability to the community and the community's ability to assert effective control over the market sphere within its territory. (Friedman 1992:81)

This perspective carries the risk of viewing a community as a homogenous entity, when in fact individual members of a community will have multiple individual interests and group loyalties. However, when working on state ICT policies and empowerment it is useful to identify different macro spheres of power and stress the role of accountability as the basis for processes of negotiation and decision-making in democratic societies.

When commenting on the agency in such processes of empowerment, Alsop and Heinsohn (2005) stress the role of the individual. Empowerment is seen, here, as being both a process and an outcome and can be defined as “a person's capacity to make effective choices; that is, as the capacity to transform choices into desired actions and outcomes” (Alsop and Heinsohn, 2005:4). The degree to which a person is empowered is influenced by personal agency (the capacity to make purposive choices) and opportunity structure (the institutional context in which choice is made). Thus Alsop and Heinsohn (2005, p. 9) do integrate notions of structure in their analysis of empowerment. They list “formal and informal laws, regulations, norms and customs” as the structural elements, and one might add state policies and programmes to this list. With regards to ICTs, relevant elements of the structure which influence an individual's agency by potentially limiting access are the availability, affordability and the capabilities needed for different ICTs (Gerster and Zimmermann, 2003). It is important to recognise that these rules do not apply for all individuals in the same way. Socio-cultural norms can be, for example, highly gendered, and this affects women's participation in the Information Society.¹

While gendered socio-cultural norms are often not codified and can therefore only be changed through gradual cultural change, formal laws can be altered relatively rapidly. In democratic societies, some of the formal laws, regulations, policies and programmes are subject to public deliberation processes in which individuals negotiate their individual interests to achieve a collective benefit. Individuals make choices as voters, as consumers and, if they are

entrepreneurs, also choices about how they get involved on the supply-side of the marketplace. In each of these roles, individual interests may differ from group interests. Thus there remains a tension between the individual and the group as actors in empowerment processes, while at the same time some of an individual's choices may only be expressed effectively via collective action.

There is the risk that empowerment perspectives which focus on the agency of the individual may underestimate the role of structural constraints and may be accused of having been co-opted into the “world of development speak” without the intention of really contesting structural injustice (James, 1999, pp. 13–14). On the other hand, perspectives focusing on the empowerment of the “community” or particular group may fail to grasp the historical power dynamics existing within communities (Werbner, 1999) or the heterogeneity of individual views and interests within groups. Thus, both critical awareness of formal and informal structural constraints and an awareness of individual agency need to be included in conceptualisations of empowerment.²

In addition to issues around empowerment, another key theme to emerge from the research was accountability. To be accountable means to be obliged to render full and truthful reports to a superior level of authority concerning one's activities (Friedmann, 1992) and to be judged by their outcomes. In democracies, the people organised into “political communities” are the legitimate sovereign, and it is to them that the state and its agents must be accountable. In Friedman's view, the goals of programmes such as those for small-business development should be determined at the local or regional level, in deliberation processes placing them in relation to other, more holistic development priorities. It is his view that “where the political space is open, it is at local/regional level that a pure growth-efficiency point of view is least likely to prevail” (Friedmann 1992, p. 83). A first step towards such accountability is transparency, i.e. providing the parties to which an institution is accountable with information to judge its performance. ICTs may play a role in making such information widely available, potentially giving people at the local level the opportunity to gather information and articulate their own priorities through local deliberation processes.

3. Research methodology

The research findings presented in this paper form part of the results from a broader research project (see Kleine, 2007). This research was based on a largely qualitative and ethnographic approach combining participant observation, stakeholder and expert interviews and basic network analysis with data from the Chilecompra online archive of public procurement orders, policy documents and secondary data from scientific and government sources. This was complemented with a one-day survey in which a short questionnaire was administered to all the 55 visitors who came to use the Infocentro on one normal workday and a systematic mapping of the town's telecommunication infrastructure. The fieldwork was conducted in three rounds, in January–March 2005, in July–August 2005 and February–March 2006 mainly at the local level in Alguin, but also in Santiago and the regional capital Temuco. For the micro-level part of the research, a remote locality was chosen to enable spatial inequality to be analysed alongside social inequality. At the local level, 29 interviews and 16 follow-up interviews were conducted with microentrepreneurs from different sectors as well as nine interviews and 12 follow-up interviews with public servants. At the national and regional level, 14 inter-

¹ For an overview of gender issues in the debate on digital divides see for example Primo (2003).

² For further discussion of development as choice and the role of ICTs, including a systemic framework mapping the elements of the development process, see Kleine (2007).

views and three follow-up interviews with civil servants and 10 interviews and three follow-up interviews with experts in the field of ICT, economic development or procurement took place.³ The majority of interviews were conducted in Spanish and they were analysed with the help of the qualitative data analysis software Atlas.ti. The software was used for data management, coding and data retrieval. Theory-building was iterative and based on both qualitative and quantitative data.

4. Choice and ICTs

In this paper the concept of empowerment is used in the context of critical approaches to ICT4D. The conceptualisation of empowerment put forward is the one by [Alsop and Heinsohn \(2005\)](#) which explicitly refers back to notions of choice and is thus related to the work of Moser and Sen on development as freedom to choose. In Alsop and Heinsohn's model, the existence, use and achievement of choice give rise to degrees of empowerment, which in turn lead to development outcomes ([Alsop and Heinsohn, 2005](#)). In this logic, the contribution of ICTs and related policies to development can be determined by analyzing whether they contribute to choice.

[Norris \(2001\)](#) describes the Internet as “the medium of choice par excellence”, and so a conceptual link can be made between the spread of ICTs, choice, and “development”. Since ICTs such as the Internet are multi-purpose media, the argument in their favour goes far beyond the conventional proposition that technological innovation will lead to economic growth. ICTs can widen people's choices and can have an impact in various sectors such as health, education, business and government ([Mansell and Wehn, 1998](#)).

Within these different strands of ICT4D research, the literature on e-government suggests that ICTs can not only foster more effective and cost-efficient government and greater convenience of government services but also increase transparency and thus accountability ([Bhatnagar, 2004](#)). By increasing the choices available to public purchasers and by making their buying decisions visible to the general public, state e-procurement is intended to make the procurement process more cost-effective and transparent ([ADBI, 2005](#)) and introduce greater competition in the procurement market ([Muthugala, 2005](#)).

However, while e-procurement may increase the range of choices available to public purchasers, it may have a very different effect on individual small businesses and microentrepreneurs. The role of MSMEs (micro-, small- and medium-sized enterprises) in e-procurement is a contested issue. Many national e-procurement programmes claim to provide opportunities for the small- and medium-sized enterprises (SME) sector⁴ to actively participate in the procurement of goods ([Bhatnagar, 2004](#); [Javed, 2005](#)) while at the same time incentivising SMEs to introduce ICTs into their business practices ([Sadiqua, 2005](#)).

A fundamental issue that may limit the access of SMEs to e-procurement is their physical access to the technology. For the purposes of this paper this direct constraint is termed the ‘level 1: access concern’. Given “low awareness and skills with technology” amongst SMEs ([McDermont, 2005](#), p. 32), public access points to the internet, and sometimes even IT skills courses, are seen as a key precondition for SME involvement in e-procurement systems ([ADBI, 2005](#)).

This reflects a key concern in the critical literature on ICT4D – the issue of digital divides, the concern that poorer countries or members of the community could be left behind while the “technological frontier” advances further and further. Digital divides are conceptualised as encompassing various dimensions including access, skills and type of usage. Research on digital divides suggests however, that as a rule, they follow other existing inequalities, with researchers such as [Wahl \(2001\)](#) taking the argument further, suggesting that the arrival of ICTs in a society may have a neutral or negative effect on the poorer groups, with individual success stories as the exception to the norm. Pointing out the centralising tendencies of digitalisation (see also [Quah 1999](#)), [Wahl](#) argued in 2001 that it would already be a great success if e-commerce were not to increase the divide between global North and South. According to [Wahl](#), certain kinds of ICT policies (including those on e-commerce) can change the opportunity structure to the detriment of poorer countries.

The divides that might be worsened by ICTs are, however, not only those between the global North and global South, but intranational divides along income, education, gender, ethnicity and urban/rural lines ([Norris, 2001](#)). This is exacerbated by the fact that the pattern of diffusion of ICTs in many countries is spatially highly uneven, tracing existing centre-periphery relationships. Many state ICT strategies aim to provide internet access to disadvantaged parts of the population.

Apart from this level 1 concern about unequal access, a less directly obvious challenge in the introduction and effectiveness of e-procurement is what [McDermont](#) calls a “perceived competitive threat to small and remote businesses” ([McDermont, 2005](#), p. 33). This effect, whereby e-procurement increases competition and makes small businesses unable to compete, is characterised in this paper as a ‘level 2: competitiveness concern’. This competitiveness concern arises partly from the way that ICTs change business practices and markets through the reduction of some transaction costs. [Kushner](#) argues that “by eliminating geographical distance, e-procurement is expected to enable companies to participate and encourage the participation of SMEs” ([Kushner, 2005](#), p. 41). The networked nature of the technologies has the potential to create wider, more dispersed markets and new market dynamics which differ depending on the characteristics of the good or service on offer. While producers of more specialised and easily transportable products could expand and sell to niche markets overseas, for more generic products, networked online market places with an increased number of actors leads to more competition. Products which cannot easily be sent via existing mail infrastructure require logistics to sell to distant clients. Increase in demand improves the importance of economies of scale and can lead to increased competition on price. Thus on this second level, the introduction of ICTs changes business practices and can also affect the livelihoods of smaller entrepreneurs.

[McDermont](#) acknowledges that the participation of SMEs will be “a leading business issue” for e-procurement systems and he advocates pricing discounts, subcontracting and the guaranteeing of some contracts as mechanisms to ensure participation ([McDermont, 2005](#), p. 33). He thus indirectly concedes that the competitive threat is not just “perceived”, by suggesting countermeasures which in some cases amount to protectionism.

However, in practice, whether or not increased competition harms a MSME's chances of winning a procurement contract very much depends on the rules of this competition. If the key criterion is price, MSMEs who cannot easily realise economies of scale are at a disadvantage. Nevertheless, if a more holistic view of the product is applied, including quality and after-purchase service, and potentially even ecological and social criteria, their competitive position may be more favourable.

³ For a more detailed discussion of the methodology, including sampling methods for the different sets of interviewees, see [Kleine \(2007\)](#).

⁴ In these discussions, microenterprises are often subsumed in the category of small enterprises, (changing the acronym to SMEs), indicating their discursive marginalisation which may also lead to microenterprises being overlooked in policy-making.

Overall, this analysis suggests that the introduction of e-procurement has a differential effect on the choices available to different groups – entrepreneurs, public servants and citizens. More generally, technological change in ICT profoundly affects business practices both through the characteristics of the technology itself and the norms enforced by the applications based on a particular technology. As a result, critical perspectives of ICTs in a “development” context should not be reduced to issues related to helping the so-called information have-nots on the “wrong” side of the digital divide join the online community. Rather, researchers need to take a more nuanced view of the processes and rules governing e-inclusion.

If one takes seriously Castells' (1996, p. 5) idea that “technology is society” and Wajcman's (2004) idea of values being inscribed in technological innovation, then there is a need to acknowledge that political agendas, some would say ideologies, can be translated and be embedded in technology. How do people go online and who defines the framing institutions (access conditions, technology, software, netiquette, norms and expectations) of their internet-related activity? Internet-based applications can be uniforming or subversive, and can enhance top-down as well as bottom-up processes both on- and offline (Castells, 1996; Perrons, 2004). It is therefore necessary to also ask questions about the underlying ideologies inherent in different internet-based technological systems, and ask whether, from the point of view of development as freedom to choose (Sen, 1999), these technologies serve a development purpose.

After discussing key concerns around the nature and enactors of power struggles from the literatures on empowerment, choice and ICT4D as they relate to small entrepreneurs, the remainder of the paper will be devoted to analysing the complex ways these concepts interrelate in the specific Chilean context.

5. Chilean state policy, agencies and initiatives

Successive Chilean governments have proudly presented their country as being a leader within Latin America, both in free trade and in ICT-assisted development. Diffusion of ICTs is more advanced than in other countries in the region, with 267 internet users per 1000 inhabitants in 2004 (UNDP, 2006a). Overall, Chile has seen stable economic growth for the last decade and is one of the most prosperous countries in the region, and in addition has one of the lowest levels of corruption in Latin America (Transparency, 2006). The national literacy level is high, at 95.7% (UNDP, 2006b). At the same time, Chile has very high levels of income inequality, with the top decile of the population controlling, in 2000, 47% of incomes while the bottom 10% control 1.2% of incomes (UNDP, 2006a,b). There are also very high levels of regional inequality, which are partly due to a legacy of centralised government and which in practical terms are also partly related to the challenges of governing a country which extends over 4300 km from deserts in the North to the Arctic in the South.

The stable macroeconomic framework and high levels of literacy in Chile suggest that the country holds great potential for ICT-assisted development. On the other hand, the question of whether it is possible that existing structures of social and regional inequality could be replicated and possibly worsened by new, now “digital” divides, deserves to be asked.

In order to assess this, first the political and economic framework in present-day Chile needs to be understood. The current government, re-elected in 2006 under the new leadership of Socialist president Michelle Bachelet, is a coalition between three parties of the centre-left (the Christian Democrats, Party for Democracy, and the Social Democrat Radical Party) and the Socialists. The coalition calls itself “Concertación de Partidos por la

Democracia” and used to be headed by the popular Socialist president Ricardo Lagos, a strong leadership figure who also championed Chile's ICT agenda, the *Agenda Digital*.

Economically, since Chile's return to democracy in 1990 following a referendum which voted General Augusto Pinochet out of power, the successive centre-left governments have largely continued the economic policies of the Pinochet regime. On the whole, these policies followed a neoliberal model, and included privatisation, deregulation, export-orientation and opening up the domestic market to foreign products. These policies resulted in stable economic growth and, since they seemed to prove the success of neoliberal globalisation, have made Chile a favourite with international financial organisations like the IMF and World Bank, who point to it as a model for other Latin American countries to follow (Falabella and Galdames 2002; Dávila, 2002). On the other hand, intense social and regional inequalities persist, leaving many poorer people outside the big urban centres feeling sidelined by the trend to prosperity (Muñoz et al., 2003; Figueroa, 2003). This is where neoliberal globalisation, in principle embraced by successive Chilean governments, seems to fail to deliver. As a consequence, in 2006, the Bachelet government put the fight against poverty at the top of its priority list, while leaving the macroeconomic policy framework largely untouched.

Observers note that the current and previous governments of the centre-left Concertación coalition see the appropriate response to poverty not only in *asistencialismo* (translatable as a culture of state assistance), but also in health, work and education for all, and an emphasis on individual responsibility (Dávila, 2002). Policies for poverty eradication range from social assistance for the needy to fostering local and regional economic development in poorer regions. Micro- and small- enterprises are seen as an important target group, because of the numbers of people relying on them for work (Vildoso, 1996; Sottolichio, 2003), especially those people who do not have high levels of formal education.

Literacy levels are well below the national average in the Araucanía Region in the South, one of the poorest of the fifteen regions in Chile, with 29% of the population officially considered, in terms of income, as poor or very poor. Levels of income inequality are high. Even with state benefits, the poorest quintile has household incomes of less than 10% of that of the richest quintile (SERCOTEC, 2003).

In the Araucanía Region, 86.7% of the formally registered enterprises are classified as micro, with less than 2400 UF⁵ (about £44,000) of annual sales. 11.8% are small enterprises (<2,401–25,000 UF, £462,500), 1.2% medium (25,001–100,000 UF, £1.85 million) and 0.3% large (>100,000 UF). The large companies however, capture 40% of sales, while the medium-sized enterprises gain 19%, small 28% and the thousands of microenterprises gain only 13% of total sales (SERCOTEC, 2003). Many microenterprises operate at subsistence level and lack capital and business know how to grow (Vildoso, 1996). Exports play a very limited role: only 0.21% of Chilean exports come from the Araucanía Region and of these 8.8% are provided by small and microenterprises, 20% by medium-sized enterprises (SERCOTEC, 2003).

While Chile's political economy is generally described as being neoliberal (e.g. Hojman, 1996; Schnitzer, 2001; Harvey, 2005),⁶ the

⁵ Chilean economic unit, Unidad de Fomento, currently worth around £18.5 (June 2007). The definitions used here are the ones used by the Chilean government (Ministerio de Economía, 2007).

⁶ In many respects the picture is more complex. For example, the Corporación Nacional del Cobre de Chile (CODELCO), responsible for Chile's most important export, copper, is still state-owned and capital controls were in place during the 1990s, minimizing the effects of the Asian Crisis (1998–1999) on the Chilean economy URRIOLO, R. (2000) Chile's economic liberalization and control of foreign capital inflow IN Friedrich Ebert Stiftung (Ed.) *Studien zur Internationalen Finanzarchitektur*. Bonn, Friedrich Ebert Stiftung.

Chilean state nevertheless plays an important role in the wider economy, delivering business development services, credits and subsidies to enterprises. This is done in an attempt to balance the government's dual policy objectives of growth and poverty reduction and is executed through a multitude of state and para-statal agencies. In order to further explain the situation of small and microenterprises in their local and regional economies, the following section will summarise, from among the many state-funded agencies in Chile, the work and aims of those which are most relevant to the small- and microentrepreneurs. The agencies related to economic development have been working with entrepreneurs for decades, while the ICT-related initiatives have only emerged since the late 1990s.

5.1. Agencies for local economic development

Amongst the multitude of state-funded agencies in Chile, some of the ones most relevant to small- and microentrepreneurs are:

- *Corporación de Fomento de la Producción* (CORFO): Offers subsidised credits to small- and medium-sized enterprises, particularly those wanting to export their products. CORFO applies standard banking policy guidelines and only formal enterprises can obtain credits directly. Credits to microentrepreneurs (formal or informal) are channelled through cooperatives and NGOs. Entrepreneurs have to pay back credits in full. CORFO focuses on growing enterprises with potential to export, and thus fits well with the neoliberal economic model.
- *Servicio de Cooperación Técnica* (SERCOTEC): Focused on the training of owners of micro-, small- and medium-sized enterprises, this service offers mainly training courses and advisory services to groups of entrepreneurs. As well as supporting fully formalised enterprises, it also works with “informal” enterprises who have not completed all the official steps towards legal formalisation, but asks that they begin this process. Ideologically, SERCOTEC is situated on the interface between an economic policy of export-and growth-orientation on the one hand and social concerns on the other, as illustrated by their leniency with informal enterprises. SERCOTEC expects entrepreneurs to make a contribution (in time or money) towards services they receive.
- *Fondo de Solidaridad e Inversión Social* (FOSIS): Primarily a social assistance service concerned with the poor, FOSIS also finances microentrepreneurial projects, mainly as a source of income for poor households. It aids formal and informal enterprises. Donations from FOSIS do not have to be paid back, putting it closest to a traditional socialist solidarity model.

Amongst these three government agencies there is considerable overlap as far as their policies and services for microentrepreneurs are concerned (González Meyer, 1997; Sottolichio, 2003), but even this brief outline shows how they each work from a different set of principles. The remaining part of the paper will analyse how some of the Chilean ICT policies and programmes have been shaped and promoted by these agencies for local economic development or related agencies, and by extension are linked to the different underlying political models, ranging from neoliberal to socialist.

5.2. ICT policies and programmes

Worldwide, countries have drawn up strategic plans on how to face the challenges and seize the opportunities of the rapid spread of new ICTs. Chile's long term ICT strategy, the *Agenda Digital*, was launched by the Lagos government in 2004. The package contained an agreement to pass new laws regarding e-commerce and intellectual property rights and a commitment to e-government which led to over 300 administrative services being offered online,

including the possibility of paying taxes (Díaz and Rivas, 2005). Schools have been supplied with computers and internet access. The Chilean government welcomed proposals for public-private partnerships, particularly with regards to the development of internet infrastructure (Rivera Urruta, 2003).

Among the policies and programmes that make up the *Agenda Digital* are two elements that were examined more closely in this research: *Chilecompra* and *Red Comunitaria*. *Chilecompra* is a system of e-procurement, which was introduced in order to make public procurement more transparent and more efficient. In 2003 a law was passed requiring, from 1st June 2005 onwards, all public tenders of local authorities over 3 UTM⁷ (around £90 in 2005) to be set on an online auction site for companies to bid for. No contracts above this value may be awarded to providers outside the online system.

In 2004 and 2005, half-day training courses in how to use this new e-procurement system were offered to public servants in local authorities, schools, hospitals and other key agencies involved in public procurement, as well as to local entrepreneurs, including (formalised) microentrepreneurs. The explicit aims of *Chilecompra*, as publicised on their website, were twofold. The first aim was efficiency, defined as saving the government time and money. The second was transparency, making accessible all the information on the procurement process. Providers (domestic or foreign firms) can register for the sector that is relevant to them and receive email alerts should a relevant tender from anywhere in the country come up. Once the contract has been awarded, entrepreneurs and the general public can check why a particular provider was successful in winning the bid.

In addition to these two aims, it became evident from interviews with representatives of *Chilecompra* that there was a third, more implicit aim. The opening up of the market created by way of *Chilecompra* was intended to introduce more competition into public procurement and to force local entrepreneurs to increase their own competitiveness by competing with larger companies due to enter the local market. Ultimately, the system is to be opened up further, to foreign companies. In return, *Chilecompra* promises participating Chilean enterprises access in the medium and long term to the procurement markets of countries and entities the Chilean government has signed free trade agreements with, such as the USA, Korea, the EU, India and China (Chilecompra 2006b).

Operating in parallel, yet independently of the *Chilecompra* system, is another state ICT initiative, *Red Comunitaria*, a network of *telecentros* (telecentres, or free public internet access points) which are often located in local libraries. The initiative offers a joint information portal for all the connected libraries online and regular computer training courses, all free of charge. The individual *telecentros* aim to attract a broad base of users, also offering access to the internet to microentrepreneurs who want to use *Chilecompra*. A local public servant oversees the computers and people wishing to use a computer or access the internet can either wait in line or book a one-hour slot ahead of time. The service is free but there is a small charge for using the printer, scanner or fax. The overall aim of the *Red Comunitaria* initiative is to include disadvantaged groups into the technological shift towards ICTs. Services are therefore based on an equal opportunity ideal related to the social policies of the centre-left government.

A government official working for *Chilecompra* summed up the key aims of the different government programmes in these terms:

Chilecompra is a total opening up of the market. A[n economic] liberalism, but absolute. FOSIS is only focused on the social question. And SERCOTEC I think is looking for the connection.

⁷ Chilean economic measurement: Monthly Tax Unit.

(Civil servant working for Chilecompra, translation by author).

Crossing the boundaries between ICT-based and non-ICT government programmes, this quote describes the ideological spectrum between the liberalising e-procurement system *Chilecompra*, the social service FOSIS, which supports many of the disadvantaged people using the *telecentro*, and the service for technical cooperation SERCOTEC, which seems to be looking for a “Third Way” (Giddens, 1998). To assist the small- and micro-sized enterprises, SERCOTEC supplies additional designated computers to the *telecentros* and encourages the small and micro-entrepreneurs to join *Chilecompra*. These linkages show how the central policy dilemma at the national level, the tension between market liberalisation and social and regional equality and the search for potential common ground, is reflected at the level of regional economic policy and brought into focus by the integration of new ICT initiatives.

6. Observing policies in action: Algun

For the research described here, interviews were conducted at the national, the regional and the local level to trace how policies and programmes that were devised in Santiago played out in the local context. The Araucanía Region was chosen as the regional focus for the research because it was both one of the poorest in the country and had been the pilot region for both the *Red Comunitaria* and the *Chilecompra* system. When asked about communities with well-run *telecentros*, ICT4D experts at the regional level⁸ pointed out three. Out of these, Algun⁹ was chosen because it was among the poorest communities in the region yet at the same time home to the best-organised group of micro-entrepreneurs within the SERCOTEC pilot programme of building a forestry and furniture cluster.

The following findings emerged from 62 in-depth or expert interviews at the local, regional and national level, 32 follow-up interviews, and two focus groups with public servants and micro-entrepreneurs at the local level, as well as from five months' participant observation in shops, workshops, offices and at meetings between public services (SERCOTEC, FOSIS etc.) at the regional level and the local level in Algun.

Algun is a town of just under 13,000 inhabitants, three hours by bus from the regional capital Temuco, and eight hours by bus from Santiago. The communication infrastructure is extensive: according to the last official census in 2002, 43% of households had their own telephone (19% fixed line and 24% mobile phone), 5% had a computer and 2% access to the internet at home (INE, 2005). Shared access, however, was much more wide-spread, with 27% of households reporting access to a computer and 8% access to the internet. The map of Algun (Fig. 1) shows the high degree of local public telecommunication infrastructure. In March 2006 there were 28 public telephones (single or double phone boxes on the street or in shops and bars), six call centres (with more than one phone booth), seven cybercafés (with between one and 12 computers), one computer training school, and the *telecentro*.

The map shows the position of the communications infrastructure of the town relative to the traditional centre of town, the Central Square (*Plaza Mayor*), with the X-shaped pattern of paths crossing it. The four largest of the seven cybercafés and the *telecentro* were located no more than two hundred meters from the *Plaza*. The three other cybercafés were smaller, one, with four computers was located to the northeast, opposite a boys' boarding school,

while the two other ones, located in less affluent areas to the south of the town, each ran only one computer with internet access. These two businesses called themselves cybercafés but gained most of their revenues from offering cheap phone calls from mobile phones which they rented out. Public telephones, on the other hand, showed a much more dispersed pattern across all parts of town, although since many of them were based in formally registered, larger shops, there were more of them in the centre.

The public *telecentro* (called *Infocentro*), located only one hundred meters away from the *Plaza*, consisted of nine computers installed in a separate room in the local library, open during normal office hours and overseen by a helpful and knowledgeable female public servant. Data from a survey conducted on a regular day at the *telecentro* as part of the wider research project showed that 22 of the 55 visitors that day were women¹⁰. Visitors were aged between 9 and 63, with a majority (43) between 9 and 29 years old and only six visitors older than 40. Three visitors had a disability. Respondents were asked for their occupation as proxy for their socio-economic status. The survey recorded 24 students, 1 person serving in the military, 8 public servants, 2 employees, 7 micro-entrepreneurs, 3 “housewives”, 4 day labourers and 5 formally unemployed people. Thus there was evidence that the *telecentro* was succeeding in reaching out to women, youths, indigenous people, disabled and elderly people and generally those with lower incomes.¹¹

In 2005, there were 172 enterprises formally registered with Algun's local authority, the vast majority of them small or micro-sized businesses. Many more enterprises operated at subsistence level without registering or paying taxes and were thus called “informal”. The local economy depended heavily on agriculture and forestry. There were, according to the municipal register of businesses, 105 shops, 26 restaurants, bars and hotels, and 28 businesses offering other services – but there was very little productive activity, with only 13 formally registered businesses in this sector. As a consequence, unemployment and poverty levels were high and Algun lost 7.5% of its population in the decade between 1992 and 2002 (INE, 2005).

The state agency for technical assistance, SERCOTEC, was trying to foster growth and cooperation among enterprises in the region. In the area of Algun, with its surrounding forests and woodlands, SERCOTEC's specific focus was on improving collaboration within and across the forestry and the carpentry sector. Thus, SERCOTEC had been working with a group of 12 carpenters (*mueblistas*) in Algun who had received 10.7 million Chilean Pesos¹² in state funds to build two shared work halls at the outskirts of town. The halls had been planned as an incentive for them to work together as part of a “cluster”. Through sharing of machinery and division of labour they were expected to attain better quality and economies of scale, allowing them to increase their production capacities and prepare for the next step, selling their products to a regional and national market and finally exporting their products. The carpenters were invited to meetings with the state agencies. As the president of the carpenters explained:

I was invited to a meeting in Temuco [with SERCOTEC, in the regional capital]. They ask for your opinion because you are a representative [of the micro-entrepreneurs]. And that day they asked us all what we wanted from the cluster.[...]

⁸ Colleagues at the Instituto Informática Educativa, Universidad de La Frontera. Jorge Díaz Villegas, Alejandra Villaroel and Manuel Morales Caamaño provided input and feedback during the fieldwork.

⁹ Name changed.

¹⁰ Due to a long history of discrimination of indigenous groups in Chile, self-reporting of ethnic identity in surveys administered in a public place is unreliable and thus the question was not included. Records of the IT training courses at the *telecentro* showed that some of the participants had indigenous surnames.

¹¹ For a more detailed study of the achievements and challenges of the local *telecentro*, see Kleine (2007).

¹² This equates to about £10,700 in a country where the monthly minimum wage in 2006 was £131 (Congreso Nacional 2006).



Fig. 1. Telecommunication infrastructure in Algun.

The key word [SERCOTEC wanted to hear] was “growth” because the microentrepreneurs have to grow, otherwise those that do not will die.

(President of the carpenters, interview 2, translation by author)

Further, the carpenters had received free training courses from SERCOTEC as well as funding for the work halls and machinery from FOSIS and the local town administration.

Up until the time of the research, the carpenters had only ever received individual orders from customers, but claimed that the orders were never big enough to justify working in a team. It was only when one of the carpenters won a public tender for 78 children’s beds (their largest order ever), to be supplied by FOSIS to low-income families, that three of them did cooperate to produce the beds. Construction work on the work halls was finished and the electricity supply secured in March 2005, but as of March 2006, only 4 of the 12 had moved their machinery there. The others claimed that they would move as soon as a larger order emerged, possibly a public tender for school furniture. SERCOTEC experts agreed that a large order would possibly kick-start cooperation between the carpenters (interviews ID 43, ID 44). Most of the carpenters had vaguely heard of the new procurement system *Chilecompra* and were hopeful that an order would emerge from it.

As far as ICTs were concerned, prior to 2005, 10 of the carpenters¹³ had taken free training courses at the local *telecentro* and had learnt how to use a computer, for example MS Word and Excel, Hotmail and Google. In 2005, only four of them reported that they were still using their email accounts.

In an attempt to use the *telecentro* to help microentrepreneurs take advantage of *Chilecompra*, SERCOTEC had provided additional computers to the *telecentro* to ensure the microentrepreneurs did not have to wait in line there until a computer became available. The four microentrepreneurs who did still go online used the *telecentro* to do so. In particular, the president of the group and his brother used the free internet access to research price quotes for machinery for which they would then apply for state funds from the social service FOSIS. By March 2006, three of the 12 carpenters were registered with *Chilecompra* and received “heaps of emails” (interview ID 9, translation by author) from it. Given that they had never received more than a handful of emails before, they felt overwhelmed. “I don’t have time to sit half a day in front of a computer – I have to work” (interview ID 2, translation by author) one of them explained. The three that were registered perceived *Chilecompra* as being too complicated and were not sure how to use it. The carpenters pointed out that at that point in time, if a public tender for furniture were to emerge, they would probably miss the email and even if they picked it up would not know how to use *Chilecompra* to tender for it. There were also problems with the nature of the contracts awarded through *Chilecompra*: from what they could see, the prices offered by the successful bidders barely covered the costs of the primary material.

The carpenters needed to preserve some profit margin to support their families. With a household income of between 0.8 and 3 times the minimum wage in Chile (around £131 per month in 2006), the 12 carpenters belonged to the lower to lower-middle class in Algun. Their experience with state ICT policies was shared by microentrepreneurs from different sectors which were interviewed. Some had taken part in free computer courses at the *telecentro*. With no private access to a computer or the internet, the ones that did go online used the *telecentro* and occasionally the

¹³ In two cases, it was the wife of the carpenter who took the course.

commercial cybercafés. Some could afford the cybercafés but preferred the free access offered by the *telecentro*. Most of them did not know *Chilecompra* or were not registered, but unlike the three carpenters who were actually registered with it, those who only knew *about* it, viewed it positively.

Meanwhile, five of the largest local enterprises in Algun (all of them still categorised as MSMEs), two ironmongers, a pharmacy, an “*importadora*” (a shop selling imported products) and a glazier, had been, according to the local authority, the first enterprises in Algun to register with *Chilecompra* when it was still in its pilot phase before June 2005. None of the five owners had ever used the *telecentro* or taken a computer course there. They had paid for IT courses elsewhere, had learnt autodidactically, or had hired someone to handle the IT side of their business for them. Each of these shops was already run with the help of a computer, and by the time of the introduction of *Chilecompra* all but the pharmacy had their own connection to the internet directly from the shop. All five entrepreneurs appreciated the greater transparency that *Chilecompra* had brought into the public procurement process. Some complained that it had increased the time they spent acquiring public orders and decreased their sales margins, making it sometimes hardly profitable to do business with the state. They felt however, that given the precariousness of the local economy they could not afford to lose the relatively constant business from local public institutions.

Of the goods or services which could be procured locally, between the introduction of *Chilecompra* in June 2005 and February 2006, local businesses in Algun had won 39% of orders placed by the local town administration.¹⁴ The local official in charge of public procurement claimed that before the introduction of *Chilecompra*, around 60% of orders were placed locally. He also reported that within the first half year following the introduction of *Chilecompra*, prices had come down so much that the local General Acquisitions Department had achieved around 20% savings on their procurement budget. The *Chilecompra* statistics show that 49% of local orders went towards the largest cities in the country (>100,000 inhabitants), including the national (20%) and regional (20%) capital. 7% of orders were won by companies based in larger towns (50,000–100,000 inhabitants), while 5% were won by companies based in neighbouring small towns. Therefore, the majority of public tenders were taken up by companies from larger towns and cities, particularly the regional and national capital.

In August 2005, of the 172 local businesses registered with the local authority, 18 had won one or more orders from the local authority or hospital via *Chilecompra*. Of these, only one was recognised by local public servants as a supplier they had not done business with before – the owner of a cybercafé. Six businesses who had been regular suppliers before no longer did business with the local authority since *Chilecompra* had been introduced. As the public servant in charge of procurement put it:

There's one thing I really don't understand about *Chilecompra* – though I know of course that this government, most of all the government of Don Ricardo Lagos has had a particular focus on technology, the internet and globalization via the internet and all that. [...] Later *Chilecompra* appeared and while it is of course a good thing, [the businesses] from the medium-sized business downwards, they are pushed a bit to the side. Above all the microentrepreneurs remain sidelined. [...] They tell us in the lectures [on *Chilecompra*] that the system is so simple, that the page is made in a way so that anybody can use it. But the people who have the small enterprises, or the ones who are day labourers, they do not

have the knowledge, which has to be there, the basics, and they just don't have them.

(Municipal procurement officer, interview ID 37, translation by author)

The reasons given by former suppliers who did not bid via *Chilecompra* were, firstly, from one owner of a larger supermarket, that he did not want to use computers; secondly, some said they did not know how to use *Chilecompra*, and thirdly, some reported that margins had come down so much that they no longer covered their costs. In nine interviews with some of the eighteen entrepreneurs who had won bids in *Chilecompra* (which included the five pioneers mentioned above), all claimed that their margins had been reduced due to increased competition online. The two local ironmongers said that sometimes they had to compete against their own suppliers online, when these larger companies from the regional or national capital would bid. A construction entrepreneur, who had been using the *telecentro* to bid for contracts, explained that labour costs had come under such pressure that he would have had to pay his master craftsman the wages of an unskilled labourer.

Construction Entrepreneur: For example, to build one room of a house, the cost of labour is 80,000 Pesos, but they [the local authority using *Chilecompra*] can get it for 30 or 40,000 Pesos, so it's not worth bidding.

Author: So who will do it [the construction work for lower wages]?

Construction Entrepreneur: At the beginning they work with the person who fulfills all the requirements and then among those they choose to do business with the cheapest. The work is of bad quality, badly executed. And *Chilecompra* does not have someone who supervises the work onsite. *Chilecompra* is missing that. So for us small entrepreneurs it is not useful.

(Construction entrepreneur, interview ID 26, translation by author)

Several entrepreneurs and public servants expressed concerns that increased pressure on prices was affecting the quality of goods ordered. Even the owner of the shop of imported goods who could offer the cheapest products claimed she had urged the local authority to make their choice not just based on price:

Now all the municipalities are joining. Everything will go via *Chilecompra*. It's difficult. For me it's very difficult. Some municipalities do not have the experience and often buy the cheapest and of very bad quality. This is what happens to me. I offer products. Like I told you we have a range of different products [of different qualities]. So I fill out the bid with good products, with more or less good products and with those that are bad [which are the cheapest]. But it's not my fault if later what I get is the order for the worst quality products.

(Shop owner, interview ID 14, translation by author)

To conclude, based on the findings of this research, in Algun the introduction of *Chilecompra* seemed to have led to the exclusion of some local entrepreneurs from public procurement. Without being registered, microentrepreneurs like the carpenters who in the past had sporadically won small scale contracts (and the one larger contract for children's beds), were, with the mandatory use of *Chilecompra* from 1 June 2005 onwards, excluded from the process. Interviews and participant observation showed that limited access to the internet (the *telecentro* was only open during office hours), but also lack of IT skills, and the gendered, unequal division of household labour which reduced female entrepreneurs' time to

¹⁴ This figure was derived from the complex yet accessible and transparent online archives of *Chilecompra* (*Chilecompra*, 2006a).

practice their IT skills, played an important role to explain why smaller enterprises were not registered.

Thus the skill- and time-intensive mechanisms of *Chilecompra* were out of reach of the smallest enterprises, leaving them without access to the online marketplace (what is called above the level 1: access concern). The small minority of local enterprises, the larger firms who were participating in *Chilecompra*, were finding it hard to compete against even larger companies from the capital on the grounds of price (level 2: competitiveness concern), though the logistics of accessing the online procurement process were less problematic for them than for the smaller firms.

On the other hand, since the introduction of *Chilecompra*, public procurement decisions had become more transparent and thus the risk of corruption and favouritism was reduced. With the sharp competition on price among providers, the state was saving money on procurement, which it could in turn have invested in social programmes.

While the *Chilecompra* system was resulting in positive and negative consequences for different actors in the local procurement market, the *Red Comunitaria/Telecentro* initiative had generally positive consequences for the residents of Aljun. The Aljun *telecentro* was, to a degree, succeeding in its equity-oriented aims of helping to bridge the digital divides in Aljun by offering skills training and access to the internet for disadvantaged groups. However, it remained doubtful whether course participants could retain the acquired new skills when they did not have much opportunity to practise. Also, according to the director of the local *telecentro*, at the local level the project still had not found a way to achieve financial sustainability for its services. Furthermore, one of the groups it catered for, the microentrepreneurs, benefited from the *telecentro* (especially from the extra computers funded by SERCOTEC) but many of the microentrepreneurs remained excluded from or disadvantaged by *Chilecompra*. The group of carpenters were in danger of missing the public order for furniture that they were waiting for as an incentive to kick-start their effort to collaborate. Thus the introduction of e-procurement contributed to the reasons why the policies which focussed on the carpenter cluster as one of the few remaining hopes for productive activity and job creation in Aljun were not achieving their aims.

7. Discussion

The above case study from Aljun makes some contradictions visible between policy responses. For a start, the two state-funded ICT programmes seemed uncoordinated: From the perspective of the carpenters, the *telecentro* offered them some ways into online space more generally while they remained largely excluded from the online market space that is *Chilecompra*.

The free IT courses offered at the *telecentro* helped, though they did not fully succeed, in assisting with resource-building (skills, knowledge). Thus in Alsop and Heinsohn's (2005) terms, they did to some degree improve the personal agency aspect of people's empowerment. The *telecentro* as an institution offered internet access to disadvantaged groups which assisted them in accessing information and potentially using it to economic advantage and to improve their livelihoods. It thus introduced more social justice into the opportunity structure, the second aspect of empowerment. However, from the carpenters' perspective, their resource endowment did not allow them the personal agency to take part in *Chilecompra* and the opportunity structure of e-procurement did not take into account the existing digital divides (the different degrees of access and skills). Following Sen's concept of development extended by Alsop and Heinsohn's model of empowerment and focusing just on one specific group, the findings suggest that the *telecentro* had a limited empowering effect for the carpenters,

while there was a risk of *Chilecompra* having a disempowering effect, of which the carpenters were, however, not yet aware.

I would argue, nevertheless, that both ICT initiatives were largely a success when evaluated against their own standards.

The two initiatives were based on separate ideologies. Based on the principles of equity, solidarity and social justice, the *Red Comunitaria/Telecentro* was trying to further digital literacy and open access for all members of the community. Visitors to the *telecentro* included women, youths, indigenous people, disabled and elderly people and generally those with lower incomes, so wider access was achieved. According to the director of the *telecentro*, the participants in the courses also came from a similarly wide spectrum, although evidence from the carpenters' group drew into question the quality of the learning in the courses and how much of it (including basic email skills) could be remembered over time without regular practice. There needs to be more research into the success rate of the digital literacy campaign. Nevertheless, in reaching this spectrum of people and giving those who wanted it free internet access, the *telecentro* in Aljun was largely successful.

On the other hand, the exclusion of the carpenters from *Chilecompra* could not simply be blamed on shortcomings of the *telecentro* initiative, although the fact that the *telecentro* was only open during normal office hours made it harder for the two carpenters registered with *Chilecompra* to find a time to browse through the incoming emails. Based on its principle of solidarity, it was logical that *Red Comunitaria/Telecentros* took public money to ensure access to the internet for disadvantaged groups. According to the initiative's own logic, it would not have had to find external funding or so-called "financial sustainability". Thus by its own standards, the *Red Comunitaria/Telecentro* Initiative was a success, though not an unqualified one.

The other state policy, *Chilecompra*, was, judged by its own standards, an almost complete success story. Its explicit goals were market transparency and efficiency. *Chilecompra*'s system of open online tendering and bidding, along with its archive of past transactions, was a great informational resource and has in this sense made the system of public procurement more transparent to providers and the general public. From the point of view of *Chilecompra*, efficiency means "getting the best deal for the state" (interview ID 55, translation by author). In this narrow sense, *Chilecompra* was very efficient: the overall savings incurred through better prices from providers were estimated as 96.75 million USD (Braga, 2005) so far. This was several times higher than the annual budget of the *Chilecompra* organisation, which was around 10 million USD.¹⁵ There still were some issues about the lack of quality control but these problems should decrease once *Chilecompra* has implemented the planned credibility ranking system (similar to e-Bay's system) to penalise unreliable suppliers.

After the introduction of *Chilecompra*, for many orders, local procurement officers could choose between an increased number of suppliers, but felt obliged to focus on price. If the state were a normal consumer, in cases where it was procuring the same quality of goods for a lower price, it would be getting a better deal. One could argue, however, that the state is not a normal consumer in that if heightened competition leads to local businesses closing and job loss, the state will bear the social costs, thus annihilating the savings made through e-procurement. According to neoliberal thinking, such a "tidying up of the market", or restructuring, is necessary to secure long term competitiveness – even if it may lead to a further weakening of local economies (like Aljun's) in more remote locations, with the ensuing problems of rural exodus and unemployment. Such a further centralisation of economic activity would lead to another increase in regional inequality in Chile.

¹⁵ Personal communication, Head of Division at *Chilecompra*, 6.8.2007.

It is at the local level that the lives of people are most severely affected by this process and thus Friedmann's (1992) assertion that a "pure growth-efficiency point of view" is least likely to prevail in political deliberations at the local/regional level is plausible. Whatever the outcome of collective political decision-making processes, the literature on e-government suggests that ICTs can increase transparency and accountability and therefore improve the basis for public deliberation processes, collective decision-making and monitoring. Central to this is the way ICT projects and applications are designed and integrated into formal and informal political processes. In this context, it is important to note that currently, the Chilean state is paying for agencies like SERCOTEC to implement plans for decentralisation and regional development. Thus, if state efficiency were to be interpreted in a wider sense, *Chilecompra's* contribution to it would be questionable, since it contradicted other state policies. According to its own, more narrow definition of efficiency, however, *Chilecompra* was successful in reaching its aims.

While both ICT programmes are to a large degree reaching their self-defined aims, the findings suggest that the two ICT initiatives introduced by the same government (a centre-left and socialist coalition) result in two contradictory outcomes for microentrepreneurs at the local level, one inclusive and one exclusive to specific low-income groups. As seen above, these outcomes can best be explained if one analyses the explicit and implicit assumptions and normative direction of these initiatives, in other words the economic and political model behind the technology. These in turn can be traced back to the difference in the aims of the Chilean state's economic and social policies. The ideologies underneath the technology clash because at the macro-level of political and economic ideologies, there are tensions between market liberalisation and social and regional equality which the Chilean government's version of the "Third Way" has so far been unable to resolve.

8. Conclusion

Research in ICT4D must go beyond trying to identify successful mechanisms to render access to ICTs more inclusive. There needs to be an analysis of the social and economic model inscribed into the technology which often implicitly sets the rules of the game which affect both the online and the offline world.

Chilecompra is evidence of how governments use ICTs to make markets more transparent. However at present the centralisation effects of the digitalisation of the economy appear likely to strengthen some larger actors in the marketplace, while disadvantaging smaller enterprises and people living in rural areas. If this is the case, then the influence of ICTs in the economic sphere in particular may make highly unequal societies like Chile even more unequal. The evidence gathered in one rural town, Aljun, raises concerns about the effects the technological change towards e-procurement can have on small local enterprises more generally. Further research is needed to gain a more nuanced understanding of the complex mix of factors that determine which microentrepreneurs stand to gain or lose from the spread of ICTs. Are there strategies that help microentrepreneurs in the informal upgrading of ICT skills? Do microentrepreneurs in the provincial, regional and national capitals fare better? Who are the winners in this process?

More generally, the combination of an in-depth case study with a multi-level policy analysis, has, in the Chilean case, served as a useful methodological approach. It may prove a fruitful path of enquiry in other critical ICT4D research. If one agrees with the premise that technology is not neutral, then it would seem a logical step to analyse the political and economic agenda behind the technology.

The legitimization of Chile's pro-active neoliberal globalisation policies rests on the thesis that a country's economic integration into global trade will lead to increased prosperity for its citizens. This logic of promised benefits for those who participate in trade extends from the global down to the local level. Having economic actors like microentrepreneurs systematically excluded from trade flows because they lack access to technology therefore threatens the moral legitimacy of the model. Both the neoliberal and socialist position can therefore agree that opening up access to the Internet via programmes such as *Red Comunitaria/Telecentros* is vital (level 1: access concern). Equally, both perspectives would agree that transparency in local governance is an important issue and would welcome the move to having time-efficient processes for public procurement. While its success in achieving transparency, and in the medium-term, time-savings for local government officials are generally accepted, *Chilecompra's* narrow definition of "efficiency" in terms of lower direct and indirect financial expenditures for procurement could be contested, arguing that it does not take into account systemic environmental and social impacts which cost the community in whose name local authorities procure goods.

In this case, two successes can still add up to one failure: *Red Comunitaria/Telecentros* may be largely achieving digital inclusion of marginalised groups such as smaller enterprises. *Chilecompra* may be largely achieving its efficiency (as defined as lower direct and indirect expenditures for procurement) and transparency aims. Yet the case study from Aljun has also shown that microentrepreneurs in rural areas may still be excluded from *Chilecompra*. They are at a systemic disadvantage when the trade system itself, facilitated by technology, disproportionately favours economic cost (price) over other qualities (environmental impact, social cost, quality of service, cultural value) of the goods or services provided and thus enterprises with economies of scale and often low-cost labour win the bids.

The current system of *Chilecompra* is in line with the principles of neoliberal globalisation and models some of its processes in miniature. In the case of Aljun, so far it has failed to deliver to many small-sized enterprises and microentrepreneurs the opportunity to take part in trade flows. To the few entrepreneurs from Aljun who do take part, so far it seems to have failed to deliver the increased prosperity promised as a reward for integration into the wider online market place. It has failed to deliver to the local administration the flexibility to make responsible choices on behalf of the communities they represent, by forcing them to disproportionately focus on price. Finally, due to the underlying neoliberal principles being inscribed into a seemingly neutral technology, the current system of e-procurement has failed to acknowledge the possibility and indeed necessity of an open-ended public and democratic political debate on the role and remit of public procurement. As predicted in the literature on e-government, the e-procurement system *Chilecompra* increases transparency. However, the positive effect on public accountability only occurs at surface level, since the political actors behind its implementation are not held accountable for the political judgements embedded in the system itself. In Friedmann's (1992) terms, the assumed objectivity of the system reduces the accountability of state actors to the community and the nature of the free market ideology embedded in the system diminishes the community's control over the market sphere within its territory, thus disempowering members of the community.

The literature on empowerment highlights the tensions between collective and individual decision-making, yet in a systemic perspective, the two are inextricably linked. If one follows Sen's paradigm of development as freedom to choose, then reducing individual entrepreneurs' opportunities to get involved in trade and reducing their options of competing on other qualities than price is not a development success. Neither is reducing public ser-

vants' options to balance fiscal discipline and socially and environmentally responsible sourcing. Most importantly, however, packaging an economic ideology into a seemingly neutral technology reduces Chilean citizen's right to decide, collectively, on guidelines for procurement which define how their public money ought to be spent to allow them the greatest freedom to choose the life they value. At this level, the principle of empowerment would demand that collective choices need to be arrived at through a participatory political process, and ought not to be pre-empted by a technological change which reduces choice.

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