Cumulative Causation and the Productivity Commission’s Framework for Overcoming Indigenous Disadvantage

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Abstract

This paper examines recent evidence on Indigenous social exclusion and attempts to relate it to the Productivity Commission’s Framework for Overcoming Indigenous Disadvantage. It is not sufficient to measure the various aspects of disadvantage as we need to understand the pathways into disadvantage and the evolution of more sustainable positive outcomes. Veblen and Myrdal’s models of cumulative causation may be a useful basis for building an understanding of Indigenous disadvantage. This paper presents cross-sectional evidence in order to suggest that the three priority outcome areas identified by the Productivity Commission are sequentially linked rather than being functionally independent.

1. Introduction

In recent years there have been many official responses to entrenched Indigenous poverty and disadvantage—principle among these is the Overcoming Indigenous Disadvantage (OID) framework (developed by the Productivity Commission), which is a product of the Council of Australian Government’s (COAG’s) response to the Reconciliation decade. Biannual reports are produced by the Steering Committee for the Review of Government Service Provision (SCRGSP) to evaluate statistics designed to evaluate progress in selected indicators (2007). These reports do not contain any policy recommendations, but rather focus on collecting and publishing better statistics on Indigenous disadvantage. The OID framework organises the data collected into three overlapping domains.

This paper discusses the concept of ‘cumulative causation’ (including theories that model peer groups) in order to motivate why the OID framework for data collection might be inadequate. The main body of the argument is broken into two parts. The first part establishes that Indigenous disadvantage cannot be understood as a list of ‘deficits’ that are grouped into three domains—there are many independent dimensions of Indigenous disadvantage. The second part explores the possibility that some of the OID indicators are functionally and sequentially related to one another. If this is the case, then data may best be understood using a model of cumulative causation whereby Indigenous disadvantage accumulates over time.

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2. Cumulative Causation

In abstract, technical terms, cumulative causation is defined as a positive feedback, in which the ‘system’ responds to the perturbation in the same direction as the perturbation. A negative feedback is where the system responds in the opposite direction to the perturbation or shock. If not controlled by countervailing tendencies, a positive feedback loop can run out of control, and can result in the collapse of the system. This is called vicious circle (or in Latin *circulus vitiosus*). Note that the terms positive and negative do not mean or imply desirability of the feedback system. The negative feedback loop tends to slow down a process, while the positive feedback loop tends to speed it up.¹

Positive feedback does not necessarily imply a runaway process; it may just have an amplifying effect, especially if negative feedback kicks in as a response to unstable equilibrium. There are examples of positive and negative feedback in ecological, biological, social systems, and engineering control systems. In electronics, feedback is the process of sampling a part of the output signal and applying it back to the input. This technique is useful to change the parameters of an amplifier like voltage gain, input and output impedance, stability and bandwidth.

Cumulative causation has a long tradition in the social sciences. For example, Fujita (2007) described several models of cumulative causation in the economics literature, including Thorstein Veblen’s institutional economics.² According to Veblen (1898), individual and the social structure are supposed to relate to each other in a circular and cumulative way with institutions being the vehicle which shape this mutual relation.

The context of Indigenous disadvantage the most relevant reference to cumulative causation is that by Nobel Prize winning economist Gunnar Myrdal whose later writings were heavily influenced by Veblen’s brand of Institutional Economics.³

¹ A system in which there is positive feedback to any change in its current state is said to be in an unstable equilibrium. If there is a negative feedback in the system it is said to be in a stable equilibrium.
² The other models examined by Fujita (2007) were: Young/Kaldor economic growth (based on increasing economies of scale—an antecedent of endogenous growth theory) and Wicksellian monetary theory of inflation.
³ The new institutionalist school of economics focuses on the rather narrow role of institutions in reducing transaction costs. However, the older school of institutional economics emphasizes a broader study of institutions and views markets as a result of the complex interaction of these various institutions (e.g. individuals, firms, states, social norms). Myrdal’s most influential and landmark book ‘An American Dilemma: The Negro Problem and Modern Democracy’, was originally published in 1944—dilemma referred to in the title is the co-existence of the American liberal ideals and the miserable situation of blacks.

Myrdal saw a vicious cycle in which whites oppressed blacks, and then pointed to blacks’ poor performance as reason for the oppression. The way out of this cycle, he argued, was to either cure whites of prejudice or improve the circumstances of blacks, which would then disprove whites’ preconceived notions. Myrdal called this process the ‘principle of cumulation’. Myrdal’s prediction that enhanced civil rights would break the vicious cycle proved hopelessly optimistic. Notwithstanding the rise of a visible black middle class in the US since the civil rights movement of the 1950s and 1960s, many Black Americans still experience relative socioeconomic disadvantage and economic segregation. For example, even though the Fair Housing Act of 1968 formerly banned racial discrimination, urban housing in America has been characterized by the persistence of racial segregation, the expansion and consolidation of black ghettos. The reason for the ongoing economic segregation of racial groups can be illustrated using a game theoretic model of the housing market first developed by Schelling (1978). Zhang (2004) has formally shown that, without any discriminatory behaviour in the housing market, a slight racial preference for neighbours in one race can give rise to a high persistent level of residential segregation. Consequently, the elimination of discrimination may not be sufficient to achieve desegregation and improve the relative economic circumstances of Black Americans.
One set of models that could be classified as involving cumulative causation are models where outcomes for individuals or groups affect related outcomes for other people. For example, peer groups are likely to be particularly important in the context of Indigenous Australia as they can explain how individuals’ norms and behaviours are shaped by the norms and behaviours of the people with whom they associate. Noel Pearson’s Cape York Institute recently ran a conference built on such themes, titled ‘Strong Foundations: Rebuilding Social Norms in Indigenous Communities’ (for details see http://www.cyi.org.au/). Theories that involve social externalities are particularly important for the argument presented in this paper because they suggest that there are theoretical reasons why the OID indicators are sequentially linked rather than being functionally independent.

Social externalities are often difficult to identify in empirical studies. For example, the extensive literature on ‘neighbourhood effects’ have remained inconclusive because of conceptual and statistical problems for measuring how the outcomes for groups of people effect the outcomes of individuals (Jencks and Mayer, 1990). Notwithstanding, this paper presents direct evidence that is consistent with peer group models.

3. The Productivity Commission Framework

The OID framework organises Indigenous disadvantage into three categories of priority outcomes that includes 12 headline indicators and various strategic changes indicators (see figure 1 and table 1). The first thing to note about the framework is that there is no neat concordance between the three priority outcomes and headline indicators.

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4 Hunter (2004) discusses related issues such as the empirical difficulties that will be faced in measuring social capital in Indigenous communities.
One way to measure the adequacy of the Indigenous disadvantage measures in the OID is to conduct a Principal Component Analysis (PCA, e.g., see, Rao, 1964). PCA allows us to identify how much information (or variance) is explained by the various dimensions of Indigenous disadvantage. Taken at face value, the OID framework seems to indicate that there are three main dimensions underlying the headline indicators. Table 1 provides a list of proxies for the OID headline indicators that are available for a PCA of Indigenous disadvantage using the 2002 National Aboriginal and Torres Strait Islander Social Survey (NATSISS) unit record file. NATSISS is probably the only consistent single source that has credible proxies for all the variables listed in the framework. For example, there was no life expectancy on the NATSISS unit record file, but there is substantial international literature showing that fair/poor self-assessed health status is highly correlated with life expectancy (Crossley and Kennedy, 2002).

Most of the other variables used are relatively close proxies of the headline indicators, but several require some explanation. Financial stress was chosen rather than household income because of the large measurement error identified in household income and poverty—mostly arising from the uncertain costs associated with households of various sizes (Hunter, Kennedy and Biddle, 2004). While there is obviously no direct proxies for suicide in NATSISS, substance abuse—or more correctly the use of certain substances (kava, heroin etc) for non-medical purposes—is likely to be strongly correlated with self-harm which is in turn correlated to suicide (by definition).5 Substantiated child protection orders are proxied by whether a respondent’s

<table>
<thead>
<tr>
<th>OID Headline indicator</th>
<th>Proxy used from 2002 NATSISS</th>
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</thead>
<tbody>
<tr>
<td>Life expectancy</td>
<td>Self-assessed health status is ranked fair or poor</td>
</tr>
<tr>
<td>Rates of disability and/or core activity</td>
<td>Disability Status</td>
</tr>
<tr>
<td>restriction (disability)</td>
<td></td>
</tr>
<tr>
<td>Years 10 and 12 retention and attainment</td>
<td>Years 10 and 12 retention and attainment</td>
</tr>
<tr>
<td>Post secondary education—participation and</td>
<td>Educational participation</td>
</tr>
<tr>
<td>attainment</td>
<td></td>
</tr>
<tr>
<td>Labour force participation or unemployment</td>
<td>Labour force participation or non-CDEP employment rates</td>
</tr>
<tr>
<td>Household and individual income</td>
<td>Financial stress: Unable to raise $2000 cash in an emergency</td>
</tr>
<tr>
<td>Home ownership</td>
<td>Home ownership</td>
</tr>
<tr>
<td>Suicide and self-harm</td>
<td>Non-medical substance use</td>
</tr>
<tr>
<td>Substantiated child protection notifications</td>
<td>Your children have been taken from their natural family</td>
</tr>
<tr>
<td>Deaths from homicide and hospitalisations</td>
<td>Family violence is perceived to be a problem in the local</td>
</tr>
<tr>
<td>for assault</td>
<td>neighbourhood or community</td>
</tr>
<tr>
<td>Victim rates for crime</td>
<td>Victim of physical or threatened violence in last 12 months</td>
</tr>
</tbody>
</table>
child was taken from their family and juvenile detention rates a captured by whether a person reported having been charged as a minor.

Table 2 - PCA Analysis of Proxies for OID Headline Indicators in the 2002 NATSISS

<table>
<thead>
<tr>
<th>Principal Component Number</th>
<th>Per cent of variance</th>
<th>Cumulative per cent of variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>2</td>
<td>10</td>
<td>26</td>
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<tr>
<td>3</td>
<td>9</td>
<td>34</td>
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<tr>
<td>4</td>
<td>7</td>
<td>42</td>
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<td>5</td>
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<td>49</td>
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<td>6</td>
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<td>4</td>
<td>93</td>
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<tr>
<td>14</td>
<td>4</td>
<td>97</td>
</tr>
<tr>
<td>15</td>
<td>3</td>
<td>100</td>
</tr>
</tbody>
</table>

Note: Some descriptive statistics are provided in Hunter (2007c).

The idea of a PCA is to describe the number of separate or distinct (orthogonal) dimensions that can describe Indigenous disadvantage captured by a given list of indicators. Table 2 shows that the first dimension (or principal component) explains only 16 per cent of the variance in the indicators, the second explains 10 per cent and so on—all the way down to the 15th and last principal component, which still explains three per cent of the variation.

Obviously there is significant correlation between the OID headline indicators, but it is not possible to reduce the information contained in the indicators to the three main dimensions as is suggested by figure 1. Indeed, if one confined the analysis to only three dimensions you would only capture about one third of the variation in the headline indicators. In a sense, there is no redundancy in OID framework in that all the extra variables seem to add something to our understanding of Indigenous disadvantage. The main message is that this PCA seems to point to there being many more than three dimensions of Indigenous disadvantage and hence figure 1 is an inadequate representation of the issues involved.

Note that this PCA has taken the list of headline indicators as given. Taylor (2007) has questioned both the coverage of indicators and the culturally appropriateness of indicators using published UN perspectives on such frameworks. For example, the OID framework focuses on disadvantage, by definition, rather than attempting to measure a more holistic notion of well-being. That is, if one wants to address Indigenous disadvantage one might need to consider more positive aspects of wellbeing. The coverage of OID indicators is not complete and arguably asymmetric. Amongst other

5 Chikritzhs and Brady (2007) argue that the NATSISS data systematically under-report the incidence of such behaviour in the Indigenous population because of the exclusion of non-private dwellings, problematic collection methods and an effective lack of confidentiality.
things the OID framework omits the size of the Indigenous estate, and economic value of subsistence activities—two examples of positive factors that will tend to ameliorate Indigenous disadvantage. Taylor provides a comprehensive list of relevant and culturally appropriate indicators that are not included in the OID framework. If government reporting has little connection to Indigenous concerns and practice (i.e., fail to acknowledge the inter-cultural domain), then policy based on such frameworks can only expect to have limited success.

Taylor (2007) also argues that there is an explicit causal model underlying the OID Framework. While there are clear notions about what constitutes Indigenous disadvantage within the OID framework, it is not entirely clear (at least, to this author) how that framework incorporates a theoretical model that allows us to make sense of causal relationships and inform us about how the various dimensions of disadvantage relate to one another. The remainder of this paper draws together some empirical analysis in order to suggest how some of the headline indicators might be related to one another.

4. Understanding the Multidimensional Nature of Indigenous Disadvantage?

One criticism of the OID framework is that it merely provides systematic means of collecting data. While this might be worthwhile objective in itself, one has to acknowledge the main weakness inherent in the OID framework is that it does not give policy makers a good sense of the inter-relationship between various indicators. Should policy makers give more weight to certain indicators because they are further back, or more prominent, in a causal chain? This, needless to say, is a tricky issue that requires a detailed theoretical model and specific empirical evidence. The following analysis is necessarily tentative and partial attempt to identify selected relationships between indicators. Rather than propose a detail theory, this section presents empirical evidence to suggest future directions for developing a more integrated theoretical perspective and collecting more useful data that gives clearer direction to policy initiatives with the greatest prospects for success.

The OID framework involves a number of types of disadvantages that are measured from a wide range of disciplinary perspectives and an even wider range of theoretical models. This section focuses on social dysfunction, crime and educational participation which are central to the recent federal intervention into Northern Territory (NT) Indigenous communities. The apparent focus on criminological theories is not an attempt to deny the importance of wider socioeconomic and cultural factors. Indeed, such issues are central for developing a model of cumulative causation to understand Indigenous disadvantage—especially the processes that determine the level of engagement with the mainstream education sector.

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6 Indigenous languages are one such positive factor that tends to be blamed for poor educational outcomes. Given that Maori language and culture have become increasingly prominent at a time when Maori economic development has been considerable, it is worth considering that such positive factors may have a role in overcoming Indigenous disadvantage in Australia (Hunter, 2007b).

7 A causal chain is a series of events with various causes. The remote cause (or first link in the chain) may be crucially important, and indeed may be more important than the last link in the chain (the proximate cause). Unfortunately, nothing is ever easy in philosophy. Even if one was to identify a causal chain through partial analysis such as this, it is not sufficient to identify the remote cause as being more important than the proximate cause (i.e. lest we commit the ‘slippery slope’ fallacy).
**Theories of Indigenous Education and Crime**

Many economic studies have demonstrated a relationship between social background and educational attainment (Haveman and Wolfe, 1995). Todd and Wolpin (2003) describe a child’s educational development as a cumulative process influenced by the history of family and school inputs as well as inherited endowments, which can be described as an education production function. While we do not have direct information on educational achievement, it is likely that educational participation will be affected by the same vector of family and school variables identified as being relevant for the decisions of agents involved in the educational development of the child. Indeed, educational participation is a precursor to educational achievement and hence the ‘education production function’.

In general, the existing econometric analyses of education outcomes do not examine the role of crime in educational outcomes because of a general lack of adequate data which combines details of interaction with the criminal justice system and educational institutions. Another possible explanation for the lack of analysis in this area is the apparent incompatibilities of several prominent theories of arrest and education. The following empirical analysis must be viewed as preliminary analysis scoping our possible explanations rather than a test of a specific theory—that is, it is a step towards hypothesis construction rather than hypothesis testing.

From the outset, it should be clear that there is no neat division between the theories of Indigenous crime or arrest and the education decision. Sociological and anthropological theories detail the factors, both alienation and conflict-based factors, which simultaneously lead to both higher rates of arrest and lower rates of education. Neo-classical theories also predict strong linkages between the educational decision and the allocation of time implied by the ‘choice’ to engage in criminal activities.

Economic-based rational choice models of crime draw on a well-developed theoretical structure of time allocation and labour supply under both certainty and uncertainty (Becker, 1975; Phillips and Votey, 1988). Unfortunately such models are rendered tractable by treating crime as ‘work’ rather than ‘leisure’. This assumption is contestable where crime is conducted without regard to pecuniary gains. In the Indigenous setting, this theory is particularly problematic because few Indigenous...
crimes are associated with any financial gain (Hunter, 2001).

National Crime Prevention Report (1999) described how the developmental processes facing children and youth are crucial determinants of eventual experience of individuals within the criminal justice and education systems. The developmental theories of crime and educational participation are consistent with a theory of cumulative causation as both emphasise the importance of historical processes, dynamic pathways and feedback mechanisms (such as peer effects). Even if alcohol and substance abuse had its roots in the ‘alienation’ and ‘conflict’, the developmental theories emphasise its role as perpetuating pathways that lead to crime and hence they could in some sense be considered causes of Indigenous crime.

The Interactions between Indigenous Crime and Education

Weatherburn, Snowball and Hunter (2006) described the factors underlying interaction with the criminal justice system, or more precisely being charged with an offence in the 2002 NATISS. That paper demonstrates that substance abuse and risky alcohol consumption are substantially more important than some of the more conventional explanations of crime such as economic factors and welfare dependency—the marginal effects of the latter are about a third as large as those for substance abuse. It seems reasonable to assume that substance and alcohol abuse are impairing individuals’ judgments and creating a destructive social environment conducive to negative interactions with the criminal justice system.

Should substance and alcohol abuse be given a higher priority than the other indicators when devising policy? While welfare reform, and engagement with the mainstream economy are clearly important issues, they may be second order concerns in the short term. However, all the major factors identified in Weatherburn, Snowball and Hunter (2006) need to be addressed when considering long run policy options.

Figure 2 - Inter-Dependence of Crime and Education Outcomes

Source: Dodson and Hunter (2006: 30)
Figure 2 charts the rate of completion of Year 12 by the age at which a person was first charged to illustrate the importance of interactions with the justice system in affecting future outcomes for Indigenous youth. The ‘whiskers’ indicate the 95 per cent confidence intervals for the respective estimates (i.e. the range over which 95 per cent of estimates will lie in repeated samples).

Indigenous people who have never been charged with an offence are three times more likely to have completed education to Year 12 than those who were first charged before their 18th birthday (i.e. before their ‘majority’). Consequently, figure 2 provides a clear indication that early involvement in the justice system is hindering the process of human capital accumulation (also see, Hunter and Schwab, 1998). Given that the effect of being charged is manifest for the substantial numbers of Indigenous people who were charged as young as eight years old, there is obviously a need for a greater focus on the developmental environment within families.

In formally modelling the effect of being involved in the criminal justice system on the process of human capital accumulation, we need to be mindful of the possibility of reverse causation (or in technical term, endogeneity bias). In particular, are the sorts of kids who do not attend school, also the sorts of kids who are going to be involved in criminal activities?

The following analysis uses the 1994 National Aboriginal and Torres Strait Islander Survey (NATSIS) as this is the only extant data source that permits this sort of analysis for youth. Note that this paper uses a similar specification to that used in Hunter and Schwab (1998). Given the potential importance of peer group and household level factors in developmental theories of cumulative causation, the specification includes some such factors.

One of the innovations of this analysis is that the empirical model used in Borland and Hunter (2000) is adapted in an attempt to make some statement about the direction of causality between arrest and educational attendance. The first-stage regression analysis of the arrest equation is separately identified from the (second-stage) education equation with significant coefficients for the potential instruments: ‘taken’ from the natural family and whether a household is within 50 kilometres of an Aboriginal Legal aid centre. For the ‘instruments’ constructed in the first stage to be valid, neither of these variables can be significantly related to the (generalised) residuals for education equation. The econometric tests of endogeneity bias used in Borland and Hunter (2000) can be rejected at the conventional levels—hence the effect of arrest on educational participation can be measured directly in a single stage education equation (for further details of test statistics and sensitivity analysis see, Hunter, 2007c). This provides evidence that the previous experience of arrest is reducing current educational attendance (table 3).

There is less systematic variation for those who were charged after they reached their majority. While being charged at 35 years of age or older is also associated with relatively low rates of school completion (to Year 12), this is likely to reflect a cohort effect as it was relatively unusual for older Indigenous people (who by definition are aged over 35) to finish secondary school.

Instrumental variable etiquette dictates that some rationale is provided to justify why these instruments are credible. The variable ‘taken’ is likely to be associated with crime in that the disruption to family life entailed in such events can effect an individual’s relationship with society and the willingness to comply with the rules of society. Another possible rationale is that the experience of being ‘taken’ is historically determined when decisions about current educational participation are being made. Distance from Aboriginal Legal Aid Centre is directly associated with experience of the criminal justice system but is not necessarily associated with educational participation.
Table 3 - Marginal Effects on School Attendance, 13 to 17 Year Olds (in Percentage Points)

<table>
<thead>
<tr>
<th></th>
<th>Including peer group factors</th>
<th>Parsimonious specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>BASE probability</td>
<td>41.4</td>
<td>48.9</td>
</tr>
</tbody>
</table>

Marginal effect: percentage change in probability of attendance at school for a hypothetical reference person (the BASE CASE)

- Arrested in last 5 years (arrested) -25.3 -24.4
- Males (sex) -2.6 -2.8
- Torres Strait Islander (tsi) 2.7 3.9
- Other urban areas (othurban) 1.4 1.7
- Rural areas (rural) -3.8 -3.0
- Remote areas (remote) -18.9 -20.9
- Married (married) 27.9 25.4
- Sole Parent (solepar) 25.6 23.5
- Live in a mixed family (mixedf) 5.2 5.8
- Engaged in hunting and gathering (huntgath) -18.3 -21.6
- Spoke an Indigenous language (Indiglan) 18.5 18.5
- Had a long term health condition (health) 12.3 12.6
- All major household utilities provided at residence (housqual) 19.1 19.3
- Other residents of household aged between 13 and 17 had been arrested (arre17oh) -12.3
- Other residents of household aged 18 and over had been arrested (arrestoh) -6.2
- Other residents of household aged between 13 and 17 going to school (still17oh) 12.6

Note: BASE = Aboriginal; Living in an aboriginal only household in an urban region outside capital city; Is single without children under 13; Does not engage in hunting and gathering or speak an Indigenous language; Does not speak Indigenous language; Does not have a long term health condition; Has a room in a house where all the major utilities work; Other household members have not been arrested in the last five years; and Other Household members either at school or have a post-schooling qualification.

Table 3 clearly demonstrates that early interactions with the justice system are crucially important for the educational participation of Indigenous youth. Having been arrested in the last five years reduces attendance at school by around 25 percentage points. This is exceptionally large effect being almost as large as the largest effect on educational participation, marital status.

The first column includes the effect of peers and the household environment which are also important. The influence of peers seems to affect individual attendance by just over 10 percentage points. For example, living in a household where there are others of a similar age going to school increases school attendance by 12.6 percentage points. The effects of role models within the household are substantial. Living in a household where the at least one adult residents had been arrested in the last five years reduced school attendance by 6.2 percentage points. Given that this paper explores the possibility of cumulative causation in driving Indigenous disadvantage, the significance of the peer group and role models is particularly noteworthy. As indicated above both are likely to involve feedback mechanisms that are crucial aspects of cumulative causation. The possibility of feedback between arrest and these factors lead me to report two columns in table 3 (i.e. one column with peer/household explanators and
another without). The effects of the other factors on school attendance are consistent with the findings of the existing educational literature and at not sensitive to the inclusion of potentially endogenous factors such as peer effects and arrest.

Educational outcomes and crime are crucial in determining socioeconomic success. While the above analysis illustrates that arrest effects educational outcomes for youth, it important to acknowledge that it also appears to have a direct effect on employment outcomes for adults. Borland and Hunter (2000) showed that the relatively high rates of Indigenous arrest account for around one-sixth of the differential in mainstream employment of Indigenous and other Australians. Given that alcohol and substance abuse are factors driving Indigenous crime rates, alcohol is implicated as a factor underlying Indigenous educational disadvantage (albeit a somewhat ‘remote cause’).

In order to motivate a cumulative causation model for understanding Indigenous disadvantage, we need to establish that there is a link between engagement with the mainstream economy and dysfunction in Indigenous communities (especially alcohol and substance abuse). Maps 1 and 2 illustrate that there is a spatial correlation between welfare dependence and community violence. Both maps are derived using the 1994 NATSIS data which is still the only source of reasonably reliable information on such matters across disaggregated geographic areas, in this case ATSIC Regions (Arthur and Morphy, 2006).

Map 1 illustrates that the level of dependence on income from government payments is high throughout Indigenous Australia. That is, Indigenous incomes are highly dependent on ‘welfare’ (broadly defined) and are not derived from activity in the mainstream marketplace. This welfare dependence is particularly high in remote areas in most states and territories.

Map 1 - Adults Whose Main Source of Income Was From Either Government Payments or CDEP Income

Source: Altman and Hunter (2005: Map 15.18)

11 Borland and Hunter argue that the direction of causality appears to be from arrest to employment using a similar diagnostic test to that used in this paper.
Map 2 illustrates family violence is perceived to be a problem in many, but not all, Indigenous communities. For the purposes of this paper, the crucial thing to note is that family violence is a particular problem in the very remote parts of most states and territories. Note that the information can be interpreted as reflecting community level factors—and is not just an aggregation of individual outcomes—as respondents to the NATSIS are asked directly about their perceptions of problems in their local community.

Map 2 - Family Violence is Perceived to be a Problem in Community


The analysis of map data can be quite tricky since spatial correlations may appear to be more significant (than they are in reality) because adjacent areas tend to face a similar set of often unobserved factors. Notwithstanding, there is a significant correlation between welfare dependence and community-level violence at the conventional levels. While no formal testing of causation was conducted for that correlation, it seems reasonable to assert that it is the lack of meaningful economic activity (and the consequent lack of income and resources) is driving a sense of alienation and community violence rather than vice versa. However, it is possible, and even probable, that community violence will drive crime, which depresses child development and educational outcomes that lead to a disengagement from the mainstream economy.

This paper argues it is time to revisit and revise figure 1 in order to better capture some broad relationships between OID priority outcomes identified in the above analysis. Figure 3 attempts to do this by giving more weight (drawing heavier lines) to those arrows where there is clear evidence of significant and substantial relationship. While the above analysis attempts to identify the direction of causality (wherever possible), it should be noted that such evidence must be viewed cautiously
since it is derived from cross-sectional survey data. Longitudinal studies and social experiments would provide more conclusive evidence on causation, but there is no such information available at this stage. Note that figure 3 also augments the OID priority domains with time scripts to indicate that cumulative causation probably occurs over a prolonged period of time.

Figure 3 - Circular Causation and the Three Priorities Areas from the OID Framework

Overall, there is some reason to believe that it is crucially important to provide a safe healthy and supportive family environment with strong communities and cultural identity. For example, positive family environments appear to facilitate positive child development and lessen crime and self-harm (see analysis related to table 3). According to the evidence presented above (that was admittedly partial), there is also a good reason to expect that safe, healthy family and community environments are also crucial in driving wealth creation (also see, Borland and Hunter, 2000), which in turn reinforces outcomes in the family and community level (e.g., the analysis of Maps 1 and 2).

While it is not possible to discount the possibility of some reverse causation, such issues appears to be of a second order concern (and hence their arrows are given less weight in figure 3). For example, child development issues could only drive the family and community environment in the long run when the children grow up and take up their responsibilities (or not as the case may be).

This augmented Venn diagram does not exclude many possibilities, and to be fair the evidence at this stage does not allow us to do so with great confidence. Economic sustainability is likely to feedback to positive child development, especially to the extent that adequate resourcing and housing is provided.

Drawing lines of various weights between the three ‘domains’ is an attempt to illustrate the evidence presented above. Indigenous people are probably in what Mydal might have called ‘cumulative causation’ with negative perturbations reinforcing one another and are leading to an ‘unstable equilibrium. The final section considers the implication of this evidence for the current policy debate.
5. Concluding Remarks

Analysing Indigenous issues in static terms and focussing on isolated indicators is unlikely to be adequate. Sound policy for overcoming Indigenous disadvantage needs new research priorities which focus on developmental processes and the evolution of community norms. This is not to suggest that measurement of Indigenous disadvantage is unimportant, rather that it needs to be informed by more sophisticated theoretical and empirical analysis of behavioural inter-relationships.

In order to provide a robust analysis of such inter-relationships, we need a particular sort of data to enhance our understanding of the relevant developmental processes. However, given that such analysis must examine pathways it is crucial that such information is longitudinal in nature. Such data could potentially allow greater insights into the causality of the developmental processes (or at least add to the plausibility of the claims about causality).

One potentially important development in this area is the Longitudinal Study of Indigenous Children (LSIC). The 2007 Federal Budget announced that LSIC would involve around 1,500 babies and children from 11 regional sites. When this data is collected it should enhance the findings from the cross-sectional studies of the Western Australian Aboriginal Child Health Survey (WAACHS, see, Zubrick et al., 2006). One issue for the proposed LSIC is that it will not be a national study—but, in a sense, it shares this limitation with WAACHS. Another issue for LSIC is that the relatively small sample size may circumscribe the power of the analysis to discern between competing hypotheses.

The OID Framework and the Federal Intervention into NT Indigenous Communities

The ‘National Emergency’ plan announced in June is far-reaching and involves, inter alia: constraints in the alcohol supply, welfare reform that introduces quarantining of government transfers for proscribed behaviour, micromanagement of Aboriginal townships, Computer audits for pornography, removal of customary laws as a mitigating factor for bail and sentencing conditions, abolishing the permit system and changing the existing land rights/tenure arrangements. Five Bills were passed without substantial amendment on 16 August after a one day review hearing in the Senate.12

The OID framework has historically been one of the main official responses to Indigenous disadvantage, but it appears to have played a marginal role in informing the ‘National Emergency’ response (hereafter called the NT intervention).13 The framework highlighted the relative deprivation of Indigenous people in many Australian jurisdictions, but the lack of regional disaggregation in official administrative data mitigated the influence on the current policy intervention. Another factor working against a role for the OID Framework is the lack of an explicit theoretical model. Given the complexity of Indigenous policy and multi-disciplinary nature of the issues

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12 Two Bills were solely for appropriation. Altman and Hinkson (2007) provide a preliminary critique of many aspects of the intervention, the following discussion reflects on the links between the OID framework and the rationale for NT intervention. Other criticisms can be found in Hunter (2007a) and the transcripts of a one day Senate hearing.

13 While this term is also inadequate because the intervention is not confined to the NT, it conveys the predominately regional nature of the intervention.
involved, this omission is understandable. However, this void has been filled by
imposing an under-developed and implicit model of Indigenous disadvantage that is
to some extent informed by the ideological proclivities of the advocates.

In a sense, the evidence of cumulative causation presented in this paper provides
one rationale for the implicit model underlying the OID Framework. If the supply side
constraints on alcohol consumption were successful then it is possible that the ‘vicious
cycle’ of Indigenous disadvantage might be broken. Unfortunately, other aspects of
the Commonwealth intervention may act against the efficacy of the constraint on alcohol
supplies. For example, Police Federation of Australia argues that by opening up the
permit system in the larger public townships and connecting roads, law enforcement
efforts to address the ‘rivers of grog’ will become more difficult (Hall, 2007).

What does the notion of cumulative causation have to add to the rather
underdeveloped models underlying the NT Intervention? Figure 3 does not describe
all potential feedback loops as there may be many contemporaneous feedback ‘loops’
related to peer effects and family effects. Social capital considerations, such as the
sociological phenomenon known as the ‘downward levelling of norms’, add another
layer of complexities how policies designed to enhance Indigenous economic
development might work (Hunter, 2004). The main point is that one cannot presume
that feedback will occur in a straightforward manner. Clearly, we only have the vaguest
notion of causal pathways underlying Indigenous disadvantage and it would be hubristic
to believe that one had a complete model.

Indigenous engagement in the mainstream economy will not automatically
(or necessarily) lead to a change in social norms and behaviour. There is an obvious
need for a more realistic model of the psychological and cultural factors than is outlined
in either the recent Cape York Institute Report or the NT Intervention. For example, it
is not clear that micromanagement of Indigenous affairs will engender the psychological
sense of control needed for people to take control of their own destiny. That is, it is
important to recognise that policy interventions themselves can induce negative
feedbacks that obviate some potentially positive aspects of the initiatives. Whatever
policy is adopted, it is essential that Indigenous Australians ‘own’ both the problem
and solution (Henry, 2007). If behavioural and attitudinal change is required, then an
adequate process of consultation with Indigenous people is obviously crucial to securing
their cooperation.

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