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# Soft Budget Constraints and Regional Industrial Policy: Reinterpreting the Rise and fall of De Lorean

The rise and fall of De Lorean Motor Cars Limited (DMCL) has been traditionally interpreted as either the result either of John De Lorean's psychological flaws or as confirming the supposed limitations of activist industrial policy. However, when the episode is examined in greater historical detail, neither of these interpretations are compelling. The reinterpretation outlined here draws on institutional analysis as well as a range of archival sources, much of it previously unreleased. The inefficiencies within the original contractual agreement are highlighted. The lack of credibility associated with this agreement was in turn traceable to the institutional environment (with its associated risk-reward implications) under which industrial policy operated. This environment had a political element - it had been distorted by the Troubles and the resulting fears policymakers had of a cumulative causation relationship between violence and unemployment. Officials in Belfast, against Treasury opposition, advocated state-led entrepreneurship as a policy response.

*Key words:* Soft Budget Constraints, Institutions, Industrial Policy, Violence, Northern Ireland

*JEL Classifications:* N84, N94, O25

The much greater costs that are always involved in an enterprise based on new inventions, compared with later establishments that rise up on its ruins, *ex suis ossibus*. The extent of this is so great that the pioneering entrepreneurs generally go bankrupt, and it is only their successors who flourish ... . Thus it is generally only the most worthless and wretched kind of money-capitalists that draw the greatest profit from all new developments of the universal labour of the human spirit and their social application by combined labour (Marx, 1981, p.199).

I'm starting to recognise that God stuck me here to be part of the solution to the crisis in Northern Ireland (John De Lorean quoted in Kirkland, 2007, p.98).

[W]hen people ask my advice about investing in Mr De Lorean's venture I tell them to put money into wine, women and song. They'll get the same return and have more fun (David Healy, Wall Street automobile analyst, quoted in Fallon and Srodes, 1984, p.198).

## 1. Introduction

Industrial policy has been advocated as a possible component in supporting infant industries. South Korea is often held up as an example of a state that has benefitted from successful industrial policy (Chang, 1993; Rodrik et al, 1995; Crafts, 1999; Wade, 2004). It has been suggested more generally that there are many cases where government support has led to successful firms. It has for instance been demonstrated that successful private enterprises – from the internet to pharmaceuticals – trace their funding to a courageous, risk taking public sector (Mazzucato, 2014). However, while there have been successes with industrial policy there have also been failures. Within the developing world, Taiwanese industrial policy has proven successful for example; this was not the case in Ghana in the 1960s and all over Latin America from the 1940s onwards (Rodrik et al, 1995; Robinson, 2009). The European industrial policy record has proven equally mixed (Grabas and Nützenadel, 2014). In addition, empirical evidence indicates that imitation of successful industrial policy may not be successful outside of the institutional context where it arose (Crafts, 1999; Rodrik, 2007).

The issue is not that industrial policies are always doomed to fail, but under what circumstances the state can create as well as fix markets (Mazzucato, 2014). Yet case studies that go beyond simple cost-benefit calculations of industrial policy projects are thin on the ground; even when an industrial policy project has been judged to have failed, a real understanding of the full spillovers - both tangible and intangible – that would allow for a more complete assessment has not been conducted. Conventional negative economic assessments of Concorde for instance are subject to this analytical weakness (Mazzucato, 2014, p.194). The failure of John De Lorean's car project in Dunmurry, Northern Ireland,

despite large scale public financial support, is one such case study of failure worth revisiting. Indeed, it is a failure that has been dubbed 'Belfast's Concorde' (Kirkland, 2007).

Explaining the commercial rise and fall of De Lorean Motor Company Limited (DMCL)/De Lorean Motor Company (DMC) provides the focus of the paper. The parent company of DMCL was the New York-based DMC (NIAO, 2004, p.7). While the project failed as a commercial entity, it is important to recognise that it had at least four notable successes. First and, perhaps foremost, the project created jobs in a location that in its neighbouring housing estates had estimated unemployment rates of 80 per cent (Levin, 1983, p.174). Second, De Lorean's promise to build a state of the art factory and 'to move from cow pasture to production within eighteen months' was one that was kept (Kirkland, 2007, p.97). Third, the workforce was rapidly turned into a highly committed one – absenteeism was a mere 1.2 per cent – willing to acquire new skills (Kirkland, 2007, p.103). Last, and certainly not least, there was the iconic design of the DMC-12 itself.

Janos Kornai's Soft Budget Constraint (SBC) approach to institutional economics, used in combination with a number of related concepts and models, such as credible commitments, Schumpeterian, opportunism and rent-seeking - as well as a discussion of the way that actors have different risks and rewards - provide some of the main analytical building blocks of this paper.<sup>1</sup> The methodological perspective developed in this paper is also Institutional. Coase argued that any useful economic theory should offer a new way of looking at things. A useful theory hence provides a way to interpret rather than predict. Such a theory provides a 'base for thinking' (Coase, 1994, pp.16-17; Wang, 2003, p.815).<sup>2</sup> Coase's methodological position implies that conducting useful rather than 'blackboard' economics involves selecting amongst competing theories (different ways of organising thoughts) in order to interpret evidence and solve puzzles (Coase, 1992). Coase's emphasis on the process

of theory selection in conducting institutional economics has been echoed by other authors interested in constructing analytic narratives (Rodrik, 2003).

Section 2 outlines the limitations of existing interpretations of the failure. In Section 3 an introduction to the SBC syndrome is outlined. It also illustrates how discussion of industrial policy has returned to the economic literature. Section 4 outlines the institutional environment. Section 5 considers the motivations of those subsidising DMCL and the behavioural effects of soft budgets are the focus of Section 6. Section 7 reinterprets the case. The more general lessons that DMCL's failure provides for industrial policy forms the basis of the concluding section. Applying institutional economics provides an alternative interpretation to the two main explanations.

## **2. Limitations of Existing Interpretations**

The two dominant interpretations for the firm's demise place the blame either at the feet of the supposedly inevitable failure of interventionist industrial policy or base their arguments on De Lorean's personality flaws. These interpretations are incomplete at best, as neither interpretation – unlike the one developed here – is based on intensive study of archival sources. A recent issue of *The Economist* identified DMCL's rise and fall as providing the paradigmatic case of government failure in industrial policy (*The Economist*, 2013). This 'government failure' interpretation is also partial as it neglects the role of the underlying institutional environment in explaining the observed outcomes. The interpretation is also ideological as it presumes that governments are doomed to fail in conducting activist industrial policy (Robinson, 2009). By analogy with Mazzucato's observations about analyses of Concorde's failure, it is particularly notable that such an interpretation downplays

any assessment of the full benefits – both tangible and intangible – that were associated with supporting De Lorean’s project.

Previous commentators have alternatively attributed the failure to De Lorean’s own personal psychological failings as the embodiment of the ‘maverick mogul’. The variety of psychological flaws attributed to De Lorean include ‘delusion’, a ‘narcissistic personality’ driven by an ‘exaggerated sense of entitlement’ combined with ‘a sense of reality...distorted beyond reason’ (Levin, 1983, p.260; Fallon and Srodes, 1984, pp.435-437). A recent book on the rise and fall of DMCL, written by Nick Sutton, a former senior manager at the firm, repeats this psychological argument (Sutton, 2013). Sutton argues De Lorean’s personal failings derived from a personality that had an inflated desire for a glamorous lifestyle. However, psychological speculation, while making for an entertaining read, does not provide a particularly compelling explanation.

A purely psychological explanation, for example, does not put enough emphasis on how De Lorean, in his repeated opportunistic attempts at extracting subsidies, which involved attempting to socialise risk while privatising rewards, made use of the political and economic sunk costs in his negotiations. De Lorean was far from unique in this ability to disconnect the linkage between risk and reward (Lazonick and Mazzucato, 2013). However, given the institutional environment, De Lorean proved adept at using the agreement to his negotiating advantage. The archival evidence indicates instead that De Lorean was a rational negotiator, who used an institutional environment to his own opportunistic advantage. His eventual failure owed more to miscalculation and a poor business model than any desire for a glamorous lifestyle. In any case, De Lorean was no mere wayward playboy, he had after all previously quickly climbed the corporate ladder at General Motors (GM). De Lorean was cited in 52 patents at the US Patent Office (GM was the owner of 31 of these patents) when

he created his ill-fated car firm (Levin, 1983, p.129). De Lorean's undoubted engineering and managerial abilities were therefore not an issue by the time he formed DMC. Such a meteoric career path suggests that De Lorean while charismatic also had a commercial and technical track record.

### **3. Industrial Policy and the SBC approach**

Industrial policy in Kornai's SBC approach is equated with preferential financial support for particular firms or industries (Kornai, 1986A, p.22; Rodrik, 2003, p.29). Kornai observed that industrial policy in a variety of forms (including grant-based subsidy) has 'softening' implications for an economy. He noted that in many countries financial subsidies were offered to declining industries and firms. Employment protection was the most common reason why recipients received external help (Kornai, 1986A, p.25). Industrial policy fell out of favour in developed economies during the 1980s as more market-orientated economic strategies, as exemplified by the Washington consensus, were pursued (Bailey et al, 2006). However, the global imbalances that expanded in the early 2000s as well as long-standing economic development objectives were identified as some reasons to revive industrial policy (Cowling and Tomlinson, 2011). The emergence of the Great Recession, and its associated market failures, as well as the related need to 'rebalance' developed economies have reignited the debates on the appropriate institutional environment under which any revived industrial policy should occur (Cimoli, Dosi and Stiglitz, 2009; Mazzucato, 2014).

Kornai's brand of institutionalism owes much to a Schumpeterian analysis. Kornai concludes that while market-orientated economies tend to create innovative results, the outcome is a far from inevitable. He has argued that capitalism's tendency for

entrepreneurship, innovation and dynamism is merely an inclination rather than a scientific law. His analysis, like other institutional economists, indicates that other factors, such as the social, political and legal environment, are crucial for economic explanation (Kornai, 2010). This analysis indicates that for a government agency responsible for industrial policy credibility is key. Public agencies want recipients to avoid losses and this will declare that they will not make bailouts. However, once losses occur, a public sector agency will be under political pressure to renege on this declaration (Kornai, Maskin and Roland, 2003, p.1107). There is thus an inherent incentive problem that will emerge from poor institutional design.

As Douglass North's analysis indicates, the problem identified by Kornai is just one example of the more general insight that poor institutional design – with the associated issue of weak credible commitments – can damage economic performance (North, 1993). North made the observation that the direction of skills and knowledge that organisations invest in will reflect an economy's pay-off structure. For this reason it is particularly notable that even at the time of peak sales for the DMC-12, expenditure on legal fees exceeded the advertising budget (Fallon and Srodes, 1984, p.304).

**[Insert Figure 1 Here]**

Figure 1 follows the attempt to summarize the chain of causality in a SBC syndrome. The S-organizations within the Kornai analysis are those patrons, donors or supporting organizations that cover the deficit in a given BC-organization. BC-organizations, are the clients or recipients (e.g. state-owned enterprises) of the subvention. Every incidence of an SBC phenomenon requires this (S and BC organization) pair of actors. Block (1) depicts the

political, social and economic environment; it outlines the environment that generates the motives behind the formation of the SBC syndrome. Block (2) represents the motivations of the S-organization that give rise to the SBC syndrome. Block (3) represents the economic outcomes associated with a SBC syndrome (Kornai, Maskin and Roland, 2003, p.1107).

This framework indicates that soft subsidies exist, and the SBC syndrome holds, when a subsidy is negotiable, subject to bargaining or lobbying. Such subsidies may be adjusted to past, present or future cost overruns; potential recipients have clear motivations to lobby to secure subsidies. Kornai argues that such lobbying efforts by BC – organizations create inefficiencies that closely resemble those distortions associated with rent-seeking behaviour (Kornai, 1986A, p.7). More recent authors have warned about the dangers of distortions, such as rent-seeking (or ‘value extraction’), which might arise from poorly designed industrial policy (Lazonick and Mazzucato, 2013). The observations of both Kornai and more recent authors have particular resonance in the DMCL case. A number of authors have demonstrated that rent-seeking, as induced by poor institutional design related to socio-political inequalities, contributed to weakening the supply-side of region’s economy prior to the outbreak of the Troubles (Crafts, 1995; Brownlow, 2007). As we will see in the next section, violence would further compound underlying economic weaknesses.

#### **4. The Relevant Political, Social and Economic Institutional Environment**

De Lorean’s location decision did not occur in an institutional vacuum. Industrial policy was formulated under dire circumstances. The political economy of ‘the Troubles’, the term given to nearly three decades of civil unrest, has been much researched and debated (Rowthorn, 1981; Michie and Sheehan, 1998). What is particularly relevant in understanding

the decision to back DMCL is the observation that economic and social policies were part of an overarching counter-insurgency strategy that involved a desire by the British government to engage in a ‘battle for hearts and minds’ of the Northern Irish population (Dixon, 2009). Moreover, there is significant archival evidence that an ‘inter-related strategy’ existed in response to the Provisional IRA’s attacks on commercial targets (its so-called “economic war”). This strategy traded-off economic, security and political objectives (Brownlow, 2012). One possible rationale for subsidising DMCL may be that by demonstrating an ability to fund the project, the British government may have hoped to signal that any “economic war” would prove unsuccessful (Brownlow, 2012, p.733).

De Lorean wanted to secure the best possible combination of generous subsidies and weakest oversight. He aimed at rationally maximising his personal rewards as well as ensuring that any risks were socialised. This kind of opportunistic outlook reached its apogee in the GPD Services Incorporated (GPD) scandal.<sup>3</sup> The industrial policy framework, particularly as envisaged by the ‘Economic and Industrial Strategy for Northern Ireland’ (henceforth the Quigley report) published in 1976, provided such a combination (Quigley, 1976). Northern Ireland offered a bundle of more generous subsidies and less oversight than alternative locations.<sup>4</sup> After 1964 a development programme was initiated by the devolved government to reverse economic stagnation.<sup>5</sup> However, by 1970 its economic advisors were openly concerned that a cumulative causation process had emerged; they suggested that ‘Northern Ireland may be caught in a vicious circle of political instability and industrial decline’ (Matthew, Wilson and Parkinson, 1970, p.3). The policy response to the potential implications of a cumulative causation scenario was the creation of the Northern Ireland Development Programme, 1970-75 (1970). This investment programme attempted to create a strategy involving a more generous industrial support package being offered than in Britain

(Matthew, Wilson and Parkinson, 1970, p.43-50). The industrial policy package offered after the Troubles began, particularly after the abolition of devolution (because of the introduction of Direct Rule) in 1972, became progressively more generous and discretionary.<sup>6</sup>

After the introduction of internment without trial in August 1971, and the intensification of the conflict, the 1970-75 Development Programme became increasingly overtaken by events. Industrial investment dried up in response to political uncertainty. This situation led to the commission of a report on the implications of violence for the Development Programme. To a large extent this Keynesian diagnosis presented a 'Treasury view', as the Treasury encouraged the Stormont government to appoint Sir Alec Cairncross to chair in the writing of such a report. Treasury officials were concerned privately that the devolved government was committed to extending industrial tax concessions as a response to violence. The Cairncross report approached the cumulative causation issue using an informal regional Keynesian model; it focused mainly on how violence reduced investment (Cairncross, 1971). Cairncross identified civil unrest, with its resulting damage to investor confidence, as the cause of reductions in regional investment, demand and employment levels.

Cairncross diagnosed that private sector investment needed support if economic and political stability was to be restored. This diagnosis led to the creation of Northern Ireland Finance Corporation (NIFC) to support investment as 'a lender or subscriber of the last resort'. Endowed with a £50 million fund, the NIFC was to provide loans and guarantees. It was intended that the NIFC would provide funds to what officials regarded as sound businesses (primarily manufacturing enterprises) threatened with closure or contraction due to violence. Between 1972 and 1976, civil servants in Belfast, in the absence of a political institution, became more responsible for the direction of regional industrial policy. As we

will see repeatedly, archival evidence demonstrates that Belfast-based officials were far keener on interventionism than the Treasury officials. The NIFC was replaced with the Northern Ireland Development Agency (NIDA) in May 1976 and a new Northern Ireland Economic Council (NIEC) was created to advise the Secretary of State.

The Keynesian diagnosis of the Cairncross report was taken in a more interventionist and supply-side direction with the publication of the Quigley report (Quigley, 1976). This report, written under the leadership of George Quigley, Permanent Secretary to the Department of Commerce, was predominately the work of Belfast-based civil servants with the assistance of the Downing Street “Think Tank” (the Central Policy Review Team) (Simpson, 1976). The Quigley report advocated the pursuit of a regional industrial policy directed by civil servants involving the creation of ‘a heavily subsidised Northern Ireland economy, with the State playing a much greater role, both direct and supportive’ (p.17). Supply-side restructuring based on planning was thus a feature of the report (p.25). The report while very concerned with employment creation was simultaneously much less concerned with raising productivity (Gibson, 1977).

A key intellectual influence behind Quigley was Stuart Holland’s writings (Holland, 1971, 1972). Holland rejected the adequacy of regional Keynesianism: he argued that Italian regional economic underdevelopment had persisted despite infrastructure improvements and subsidies. Holland argued that such measures needed to be supplemented by more interventionist planning. He focused in particular on the role of the Italian Institute for Industrial Reconstruction (IRI) as a ‘state entrepreneur’; Holland’s formulation influenced a short chapter in the Quigley report being entitled ‘The state as entrepreneur’. Elsewhere, without mentioning the IRI by name, the report advocated that NIDA should play an IRI-type role (p.63). The report advocated extending government ownership in manufacturing

factories. The formation of Strathearn Audio Ltd in West Belfast in 1973 was identified as a pioneering example of state entrepreneurship (p.36).<sup>7</sup> The report's advocacy of subsidy had potential implications for the hardness of budget constraints as it was explicit in advocating more generous subsidies as a response to political risk. It suggested that the 'margin of advantage in incentives' relative to those offered in Britain's Assisted Areas, and those offered by the Irish Republic's Industrial Development Authority (IDA), needed to be widened if investment was to be attracted (p.32). A generous incentive margin (or risk premium) in the level and terms of the subsidies on offer was advocated if the disincentive to invest caused by political uncertainty was to be offset (p.32).

The report specifically identified 'social as well as economic objectives' as crucial in shifting the economy in the direction of greater planning (p.36). By way of illustration, the authors claimed that state-directed entrepreneurship would take greater risks in location decisions relative to the private sector. Furthermore, the Quigley report argued that 'blue chip' inward investment projects backed by financial support would directly create jobs and indirectly attract a secondary wave of employment based on imitating pioneering inward investors (p.18, Sutton, 2013, pp.6-7). Notably, this 'flying swan' argument, that a successful DMCL project would attract further inward investment projects, was invoked by Quigley when he encouraged Roy Mason, the Secretary of State for Northern Ireland, to secure Whitehall support.<sup>8</sup> The interventionist arguments embodied in the Quigley report with its message that political risk necessitated more activist planning, more generous subsidies and greater discretion for civil servants provided a manifesto for officials in Belfast who were the enthusiastic backers of attracting DMCL.

In 1977 a £1billion package of industrial incentives based on the Quigley report was announced by Mason. The package included the raising of capital grants to industry by 10 per

cent to 40, 45 and 50 per cent respectively for areas of low, intermediate and high unemployment levels (Gibson, 1977, p.18). Unlike the Quigley report, however there was within Mason's package no promise of investment in state-sponsored industry. The dilution of the full Quigley package was not explained at the time (Simpson, 1977). However, as the archival evidence used in this paper demonstrates, while concerned about offering a subsidy risk premium (in order to attract inward investment and promote indigenous industry) the Treasury was even more hostile to the idea of state-led entrepreneurship. Treasury pressure most plausibly explains why Mason's package put emphasis on subsidy rather than publicly-owned enterprises.

## **5. Motivation of the S-Organization in the De Lorean Case**

Officials in Belfast, and within the Northern Ireland Office (NIO), were more convinced of the possible intangible political benefits associated with industrial regeneration; they were simultaneously less concerned by the direct financial costs. Underlying the Treasury's misgivings was one of forecasting and control within the NIO as well a fear that DMCL would become perpetually reliant on subsidy. The Treasury as early as July 1980 had concluded that problems at DMCL were linked to the NIO's failure to adequately forecast and control.<sup>9</sup> Furthermore, at a meeting held between Treasury and Northern Irish civil servants held in December 1981, Treasury officials are still recorded as wanting assurance, on behalf of ministers, that 'there was no risk of the company [DMCL] becoming a permanent pensioner'.<sup>10</sup>

In terms of the assessment of risks and opportunity costs associated with the project, Wall Street analysts had during 1977 concluded that the DMC-12 was not a prudent

investment. The commercial failure of the gull-winged Bricklin SV-1 further deterred some investors. McKinsey, however were retained by NIDA as consultants during the project, were more optimistic. Their 1978 commentary on the original corporate plan placed the chance of success at around 40 per cent. McKinsey noted the sunk costs of the project were extremely high. Neither the £24 million machinery budget nor the factory space itself had much in the way of a viable alternative usage (Brownlow, 2015, p. 168).

The initial employment grant implied an official forecast annual cost per worker of £6500, though on other measures the cost would have been as high as £30,000 per worker. The archival material does not suggest that officials in Belfast considered alternative uses for this scale of funding. It is notable that based on official figures (and using 1979 prices) the costs per job year of the average large inward investment projects (1000+ initial employment target) at £1,552 was more than three times (at £510 per job per year) that incurred in small and medium enterprises (initial target of less than 250) (Northern Ireland Economic Council, 1983, p.31). So in cost-effectiveness terms the project looked particularly expensive. Furthermore, there were alternative (albeit less glamorous) uses for the money: Northern Ireland's public infrastructure needed investment. Given the poor state of the regional housing stock, a high public expenditure multiplier, as well as unemployment within the construction industry, increased spending on public housing may have had high social and economic benefits. Yet, whereas in 1977, 7,700 new public sector dwellings were completed, by 1980 only 2,500 were (Gaffikin and Morrissey, 1990, p.158).

As outlined in a letter to Joel Barnett, Labour's Chief Secretary to the Treasury, Mason claimed that, by creating jobs in the nationalist unemployment black spot of West Belfast, the project had political, economic and security benefits that would more than offset the substantial public expenditure.<sup>11</sup> Barnett, expressing Treasury scepticism in the

increasingly interventionist (and expensive) direction of policy, countered with the worrying precedent of Strathearn Audio's commercial failure.<sup>12</sup> It was the interventionist outlook in Belfast, with the associated softening of budgets, which won out initially. It took 46 days, from initial introductions to formal contracts, to persuade the British government to provide the funds needed to attract DMCL to Dunmurry. In contrast, De Lorean had negotiated for 18 months with the authorities in Puerto Rico. On June 21 1978 between the Department of Commerce, NIDA and the De Lorean Motor Company an agreement was established. De Lorean had between 1974 and 1978 had raised barely \$5 million for his venture; in the span of a month and a half, courtesy of the British taxpayer, the coffers had swelled twenty-fold (Levin, 1983, p.159). The wisdom of that decision was questioned, and the holding of press cuttings by officials in Belfast, as well as the contents of McKinsey's consultancy reports, demonstrates that they were well aware of industry scepticism.<sup>13</sup>

De Lorean would tell the media the financial incentives were not compelling in his decision to locate in Dunmurry. Yet the subsidy package was approximately three times as much as the IDA offered and twice that offered by Puerto Rican authorities (Fallon and Srodes, 1984, p.128). That was more than enough compulsion (or additional rent) for De Lorean. There were at least three flaws within the institutional design of the original agreement that contributed to the inability to commit DMCL to efficient outcomes. A first, fault line was that the Department of Commerce agreed to an additional monies provision. It was agreed under this provision that it would provide additional assistance to the original £53 million package if the expenditure projected proved insufficient because of factors beyond the company's control.<sup>14</sup> Given Northern Ireland's unstable political environment this contractual feature ensured that DMCL would be insured at the taxpayers' expense.

A second flaw, which followed from the Quigley report's emphasis, was that the master agreement focused on employment creation rather than on promoting productivity. De Lorean was given until the end of the fifth year to employ 2000 people (Sutton, 2013, p.131).<sup>15</sup> The agreement stated that:

Any breach by the company of its employment obligations under the agreement may and shall entitle the Department [of Commerce] to require the company to repay all or such part of the financial assistance made available by the Department as the Department may determine.<sup>16</sup>

A third flaw, related to the political risk element of industrial policy, was the asymmetry between risk and reward. De Lorean was able to secure initial funding without investing anything himself. De Lorean's rational desire to secure the returns while socialising risk was agreed to by NIDA, which was understandably desperate for job creation. In contrast, the Puerto Rican investment agency, would not have provided any subsidy until De Lorean had invested \$25 million himself (Fallon and Srodes, 1984, p.146). By the time DMCL closed, 73.5% of ordinary share voting rights had been paid for with a mere £546,000 of private sector investment and the taxpayer got the remaining voting rights with a £17,757,000 investment.<sup>17</sup> This imbalance between the appropriation of risk and reward would prove to be self-reinforcing. In August 1980, De Lorean was able to argue successfully that under the original agreement all physical assets remained government property until the project reached the market. Hence, De Lorean suggested that the firm had no physical assets to use as collateral for any loan and it would have to secure further government finance! De Lorean's argument, which was legally within the terms of agreement, was enough to secure DMCL a further £14 million injection.<sup>18</sup>

It is notable that even this was not enough softening of the budget constraint for De Lorean, as he promptly tried to renegotiate this loan into a grant (Fallon and Srodes, 1984,

p.380). Once again De Lorean rationally attempted to tilt negotiations towards an ever greater degree of privatised rewards and socialised risk. However, the more De Lorean behaved opportunistically, the more he eroded his personal credibility within negotiations. Sutton's recent account dates the tipping of the scales of credibility between De Lorean and 'British civil servants' to July 1980, Sutton suggests that after this point the venture was viewed as 'parasitic' (Sutton, 2013, p.95). Officials in Belfast, the NIO and politicians on both sides of the Irish Sea were unarguably slower to change their mind on the need to cut their losses.<sup>19</sup>

A Department of Industry memo, dated July 29<sup>th</sup> 1980, observed that apart from legal problems, it was only the uncertain political and security situation and the possible negative publicity (particularly in the United States) associated with closure that provided good arguments to keep pouring money into the project.<sup>20</sup> Conservative Ministers initially followed this line of argument. In a minute from Humphrey Atkins to Sir Keith Joseph, Secretary of State for Industry, the balance between security, political and economic objectives was discussed in stark terms:

...if the [UK] government does not provide the extra funds, the project will immediately collapse. Our credibility with the minority population will be severely undermined: unemployment in Northern Ireland at 14.7% is double the rate in Great Britain and is even higher in depressed Catholic areas like West Belfast. The decision [not to offer additional subsidies] would be contrasted with our treatment of Harland and Wolff; we would be accused of ignoring the worsening unemployment situation...<sup>21</sup>

The contrast made by Atkins further highlights the political dimension underpinning industrial policy. Harland and Wolff had a predominately Protestant workforce (Brownlow, 2012, p.732). By the 1980s the shipyard, along with Short Bros, still accounted for around a

tenth of Northern Ireland's manufacturing employment, but approximately a third of all industrial subsidy (Gaffikin and Morrissey, 1990, p.88). As late as December 1981, James Prior, Atkins' successor, was still arguing with the Department of Industry along identical lines.<sup>22</sup> It is notable that sunk cost considerations persisted, and help explain the continued financial support, after the election of the Thatcher government in 1979. As will be demonstrated in the remaining sections, the motivations of the S-organizations and the eventual hardening of the budget constraint are more traceable to shifts in bargaining strength (such as those between Belfast and Whitehall as well as between the civil service and DMCL) than to ideological change.

## **6. Behavioural Effects in the De Lorean Case**

External events did not help DMCL; as Sutton acknowledged, there was many a 'self-inflicted wound' that help explain the firm's failure (Sutton, 2013, p.74). Both demand and supply blades of Marshall's 'scissors' conspired against the firm. It should be recalled that the delayed project came on stream as the vital American market moved into a severe downturn: the extremely cold winter of 1981-82 was the worst that United States had experienced in many years. However, while sources of demand, such as the business cycle and weather, conspired against DMCL, the delay in the project launch was traceable to a failure on the supply side. Problems in the firm existed prior to the DMC-12 reaching the market. The delay in production for example was due to a failure to design parts and ensure the associated tooling had started (Sutton, 2013, p.94). By the last week of 1981 only 25 cars were sold; while it was possible for the firm to produce 400 a week, even that was below break-even level (Sunday Times Insight Team, 1984, pp.15-16). So while the demand side environment became adverse, it was arguably less a source of failure than these production

problems (Kirkland, 2007). Production problems ensured that the final recommended selling price was more than twice the original planned one (Brownlow, 2015, p.171). By late 1981 discounts were already being offered on unsold cars (Fallon and Srodes, 1984, p.385).

The SBC syndrome is particularly useful in discussing the rise and fall of DMCL as it goes much of the way to explaining why the firm's cost base swelled as it started to hire more workers and produce more cars. These increased costs contrasted with it becoming ever clearer that the firm's underlying cash flow position and the demand for its product were far weaker than DMCL's initial projections had indicated. The project aimed at producing up to 30,000 cars a year (NIAO, 2004, p.7). As we will see later, monthly production targets were never met. Even those cars that reached dealers failed to secure buyers at the price envisaged by DMCL. The three major behavioural effects or symptoms of BC-organizations identified by Kornai, Maskin and Roland (2003, pp.1105-1106) are as follows:

- a) A reduced emphasis on profit maximisation and/or cost control combined with an excessive reliance on rent-seeking relative to profit-seeking;
- b) The reduction in the price sensitivity of BC-organizations arises as relative prices become less important on both the input and output sides if the gap between revenue and expenditure is no longer critical to the survival of a BC-organization;
- c) An excessive demand for inputs may lead to serious shortages as S-organizations rather than BC-organizations foot the bill. The investor in a risky venture anticipating outside support may invest excessively. Excessive economic expansion, however measured, may be the result.

There is evidence that all three symptoms were apparent. The evidence is particularly clear for a) and c). De Lorean made recurrent appeals for cash. After the initial package of 1978 he

negotiated a further £14 million in August 1980, a government bank loan guarantee worth £10 million in February 1981 and riot damage compensation of £7 million in May 1981.<sup>23</sup>

There is plenty of evidence of engineering problems as well as poor financial control contributed to component, wages and overheads estimated at being between two and three times higher than they should have been for the sales volume (Fallon and Srodes, 1984, pp.358, 368-70).<sup>24</sup> It has been claimed that by the time the firm closed in 1982 its cash shortfall was \$50 million (Fallon and Srodes, 1984, p.378). Extravagant expenditures and salaries have been noted by journalists. Perhaps the most infamous example of extravagant expenditure was the remodeling of a guesthouse on the factory premises. A reputed £20,000 was spent on gold-plated taps for the bathroom and between 1979 and 1980 the travel, entertainment and promotion budget increased from \$540,000 to \$1.1 million (Levin, 1983, p.177; Fallon and Srodes, 1984, p.366).<sup>25</sup>

The composition of costs were also symptomatic of a business that was relying on rent-seeking, litigation and opportunism rather than value creation. De Lorean used threat of legal action repeatedly in his bargaining with the UK government (Fallon and Srodes, 1984, p.272). In contrast, his repeated attempts at securing funding for the Transbus project, a clear breach of the initial agreement, did not lead the DOC or NIDA to sue (Fallon and Srodes, 1984, pp.270-72). The possible negative commercial repercussions the publicity that such legal action, for both the project and Northern Irish inward investment prospects more generally, provides the most plausible explanation for this apparent bargaining weakness by Belfast-based officials. De Lorean used this weakness to his negotiating advantage; in the process he eroded what goodwill remained.

**[Insert Table 1]**

Table 1 illustrates that the combination of lax cost control, poor productivity and general reliance on subsidy led to an underperformance in output terms throughout 1981. In contrast, while DMCL found it impossible to profitably produce output, it found relatively easy to demand more labour inputs because employment creation was a key component in political support for the project.

**[Insert Table 2]**

Table 2 is based on previously unreleased archival evidence. It illustrates that DMCL only came close to the promised job creation in the third quarter of 1981 and exceeded the forecast by the first quarter in 1982. It has been claimed that as early as 1980, De Lorean knew there was no need for the projected workforce levels employed at DMCL (Fallon and Srodes, 1984, p.244). Sutton's insider account confirms the observation that the firm started to outperform its hiring targets despite their being no sound commercial 'justification or need' for such hiring (Sutton, 2013, p.131). In other words, the firm only started to meet and exceed its hiring targets at precisely the time its commercial prospects were getting progressively weaker. This apparently puzzling finding is explicable in terms of the perverse incentives within the original agreement and the way they promoted an inefficient outcome.

In New York, De Lorean would boast openly that he had the public bodies in Northern Ireland 'over a barrel' (Fallon and Srodes, 1984, p.367). It has been suggested that De Lorean deliberately timed calling for subsidies when the car was in production as he assumed the government would be more vulnerable: in the words of Fallon and Srodes 'No one would dare to pull the plug at that point' (Fallon and Srodes, 1984, p.230). De Lorean was rationally calculating that the more people were hired, the more generous the subsidy package would be and the more politically difficult it would be for the authorities to credibly commit to closure.

## **7. Reinterpreting the failure of De Lorean: credibility and contracts**

The role of expectations in creating bad outcomes was explained in section 2. In this section this insight will be used to reinterpret the failure of DMCL. In the context of the first decade of the Troubles it is straightforward to see how the original agreement shaped expectations in ways that exacerbated problems. Once the agreement was made, there were sunk costs that reinforced problems; it is considerations of such factors, rather than a free market or psychological interpretation, which provides a more complete analysis of DMCL's failure. Kornai, Maskin and Roland contend that SBCs may arise because of an institutional fault-line: S-organizations are unable to commit themselves to not extend further credit to BC-organizations after providing the initial finance for a project (Kornai, Maskin and Roland, 2003, pp.1107).

The relative ability of an S-organization to tie its hands and commit itself to not undertake a bailout will affect the behaviour of the BC-organization. So 'hardening' the budget constraint means being able to credibly commit to not constantly refinance the BC-organization. Kornai, Maskin and Roland note that the crux of the SBC syndrome is thus the lack of dynamic commitment which could arise with paternalism but also with other motivations on the part of the S-organization (Kornai, Maskin and Roland, 2003, pp.1111). This pre-commitment issue affected both Labour and Conservative government's relationship with DMCL. It was difficult given the institutional environment that existed during the period for the pre-commitment needed for successful industrial policy (as measured in purely economic terms) to be created.

Commitment issues were endemic in a situation where subsidises had important intangible (political-symbolic) as well as tangible (economic) consequences. The fault lines within the original master agreement and the related unwillingness to litigate against DMCL were connected to the failure to commit De Lorean and the sunk costs that emerged after the agreement was signed. De Lorean's opportunism only stopped when he overplayed his hand. De Lorean was increasingly prone to claim that the political situation explained his firm's poor performance (Fallon and Srodes 1984, p.390). Such claims started to get wide traction in the United States.

Policymakers started to worry that DMCL, rather than attracting a secondary wave of further investors, as Quigley had predicted, would actually deter investment. An undated, and previously unpublished, document from 1982 provided civil servants with briefing points to be used to refute De Lorean's claims in the media. The document also highlight the attractiveness of the subsidy packages on offer.<sup>26</sup> Perhaps it was this switch in DMCL's reputational impact that encouraged civil servants and politicians in Belfast (and at the NIO) to finally overcome their fear of the sunk cost repercussions of closure. However, by early 1982 it was increasingly clear that rather than enhancing the credibility of Northern Ireland as an investment location, it was actually damaging the image. Recurrent appeals for subsidy damaged public finances as well as the reputation of the policymakers involved in other negotiations.

Consumers view car purchase as long-term contract with warranties to be honoured, parts to be supplied and dealerships to persist. When consumers are uncertain about these issues they are less likely to buy. There is clear evidence that media reports of supply-side problems within specific automobile manufacturers reduce demand for their products (*The Economist*, 2008). Hence as negative reports of DMCL's situation grew day by day, it is

plausible to argue that reports of weak demand – regardless of the underlying cause - may have become a self-fulfilling problem as such reports would have tended to deter sales.

The final straw, in terms of hardening the budget constraints, came in January 1982. Prior had argued with Cabinet colleagues as recently as December 1981 for continued financial support for DMCL (Fallon and Srodes, 1984, p.381). However, the information on company performance he had received within a month of that optimistic outlook changed Prior's mind. De Lorean for his part was, understandably given that it was tilted in his favour, still refusing to renegotiate the master agreement and he threatened closure (Fallon and Srodes, 1984, pp.381-82). It was at this point that Prior refused further financial support and De Lorean was forced to accept Prior's proposal to appoint Sir Kenneth Cork to investigate if a reorganized firm was salvageable. Cork finished his report illustrating that there was a loss and that the outflow of money from DMCL to DMC was being paid for with taxpayer's cash. Cork proposed a new financial deal based upon De Lorean bearing more the risk. Cork insisted that De Lorean would produce an investor to put up the working capital as well as \$5 million of his own cash. Time and cash however ran out for De Lorean: DMCL was placed in receivership in February 1982 (NIAO, 2004, p.7). Production ceased in May 1982 and the factory closed in October 1982. In November 1982, DMCL was legally wound up. In December 1983, DMC went into liquidation with the American courts appointing a 'Trustee' (NIAO, 2004, p.7).

## **8. Conclusions**

The more general failure of Northern Irish industry to close its productivity gap with Britain during the Troubles, a problem that has persisted to the present day, has been presented by mainstream economists as evidence of a failed industrial policy (Fielding, 2003).<sup>27</sup> The limits of this interpretation provides an example of the more general limits of neoclassical ‘economistic’ approaches as a ‘base for thinking’ (Coase, 1992) By not recognising the intersections between political, legal and economic institutions, a narrowly economistic interpretation is incomplete at best. Recent work highlights the need in industrial policy to correctly judge the balance between ‘carrot’ and ‘stick’ in promoting successful interventions as well as the role of political equilibria in determining the success or failure of industrial policy. It has been suggested the difference between success and failure lies in the objectives and functioning of the organisations implementing the policies and these in turn are shaped by the political situation (Robinson, 2009)

The failure to pursue a policy that would lead to a viable business rested to a large extent on the institutional environment that emerged in response to civil unrest and have continued exist despite the Good Friday Agreement of 1998. As recent historical studies of the Troubles have shown, and the evidence produced in this paper confirms, policymakers had to strike a balance between economic and ‘non-economic’ outcomes (Aveyard, 2012; Brownlow, 2012). The non-economic outcomes included security, legal and political considerations. Returning to the introduction of this paper, Mazzucato’s analysis indicates that the success or failure of industrial policy should be judged relative to a wider range of measures. DMCL, despite its technical achievements, can be judged a commercial failure because it was expensive with high opportunity costs. However, given the desperate political situation it is understandable why the project was backed more by officials at Stormont’s ‘coalface’ than those within the Treasury.

The particular relevance of applying institutional analysis to the case is that allows for the different motivations of the actors and it also provides an explanation of the switch from DMCL being viewed as a 'flying swan', which would attract further investment, into a deterrent to economic development. De Lorean in 1978 had the motive, means and opportunity to exploit the existence of soft budgets for his own ends. By 1982 it was not his motivation that had changed, it was the means and opportunity that had altered: De Lorean, despite benefitting from a badly designed contract, overplayed his hand. Officials in Belfast eventually concluded, as had those in the Treasury somewhat earlier, that DMCL was not going to provide commercial or political benefits. In the final analysis, the failure of DMCL does not provide a simple vindication of the alleged impossibility of 'picking winners'; nor was the failure due entirely to De Lorean's personality defects as a 'maverick mogul'. Institutional economics combined with intensive archival study contribute towards creating a more plausible interpretation.

**1** The SBC concept was first formulated as part of Kornai's discussion of the economics of shortage under socialism (Kornai, 1979, 1980A, 1980B, 1986A; 1986B). Kornai observed distortions in the Hungarian economy of the 1970s, which at the time was a planned economy experimenting with economic reforms (Kornai, Maskin and Roland, 2003, p.1096). In that case, a 'softening' of the budget constraint (the distortion) appeared when the relationship between expenditure and earnings was relaxed and a decision-maker within a potential recipient firm expected financial assistance to make good the gap (Kornai, 1986A, p.4; Robinson and Torvik, 2009). Expectations explain why the SBC syndrome can imply a self-reinforcing rather than equilibrating process. Once an entrepreneur expects to be rescued from trouble, the expectation will affect their behaviour in a way that makes intervention more likely (Kornai, Maskin and Roland, 2003, p.1104).

**2** The dominant methodological outlook within the economics profession, following Friedman (1953), identifies prediction as the sole criterion for judging the merits of a theory. The Coasean alternative, by contrast, implies that economic theories are not like airline or bus timetables, which are of use only because of the accuracy of their predictions (Coase, 1994, pp.16-17).

**3** The legal paperwork that followed the scandal helped shine a light on the more general failings of DMCL. The GPD services episode could form the basis of a paper in its own right. At its simplest, R&D work for the car was supposed to be performed by Lotus Cars Limited, under an agreement with GPD Services Incorporated (GPD) a Swiss-based company. Agreement was for GPD to get US \$17.65 million (or £8.83 million); however, DMCL paid Lotus/GPD an additional \$23 million (£11.5 million) on a 'cost plus' basis for additional work. However, investigation showed that none of the initial sums (US \$17.65 million) ever found its way to Lotus. This fraud as well as the more general losses of public funds led to two decades worth of litigation. The arrest for cocaine possession (which was ultimately thrown out) has likewise been extensively covered elsewhere (Levin, 1983; Fallon and Srodes, 1984). The legal manoeuvres that led the UK government to sue for compensation can be read about in (NIAO, 2004).

**4** After partition in 1920, the six north-eastern counties were given a self-governing (or devolved) province within the UK called Northern Ireland (Rowthorn, 1981, p.2). By 1971 it was estimated that Catholic male unemployment (at 17.7%) was nearly three times the Protestant equivalent figure (Portland Trust, 2007, p.7). Economic disparity between the two religious communities was a principal aggravating factor in igniting civil unrest (Portland Trust, 2007, p.7).

**5** Economic stagnation predated the emergence of the Troubles. Four reports written on behalf of the devolved government were released between 1957 and 1965. Each of these official reports observed that the region had the lowest income per head and highest unemployment rate of any UK region (Isles and Cuthbert, 1957; Hall, 1962; Matthew, 1963; Wilson, 1965). Industrial problems certainly exacerbated tensions once the Troubles began. Within both official reports and the academic literature it has long been acknowledged that poor economic performance, with the consequent scarcity of jobs and public sector housing, deepened sectarian divisions (Matthew, Wilson and Parkinson, 1970, p.3; Government of Northern Ireland, 1970; Portland Trust, 2007, p.7).

**6** Grants were made available to cover plant, machinery, buildings and employments if applicants could persuade the Department of Commerce that, by restructuring, job losses could be prevented (Harris, 1991, p.80). On the progressively more generous and discretionary grant package that existed in Northern Ireland relative to Britain see (Harris, 1991, pp.80-94).

**7** However, see the critical tone of the letter from Joel Barnett to Roy Mason, 17th July 1978 in PRONI CENT1/10/18 'De Lorean 1978-1980'.

**8** Within less than a month of the agreement Roy Mason wrote to Joel Barnett. In the letter Mason, was very upbeat in his assessment of the economic and political consequences of investing in DMCL. Mason's analysis borrowed heavily from Quigley. Letter from Roy Mason to Joel Barnett, 11th July 1978 in PRONI CENT1/10/18 'De Lorean 1978-1980'.

**9** 'Northern Ireland: Claim on Contingency Reserve', memo by J.H. Chapman, Department of Industry, July 30<sup>th</sup> 1980, in NA FV22/125 'De Lorean Motor Co Northern Ireland Car Assembly Project'.

**10** 'Meeting December 9<sup>th</sup> 1981, De Lorean Government Guarantees, minute dated December 22<sup>nd</sup> 1981 in NA FV22/125 'De Lorean Motor Co Northern Ireland Car Assembly Project'.

**11** Roy Mason helped transform Stormont enthusiasm into Whitehall cash; by no means was he, or indeed any other politician, the intellectual or administrative driving force for attracting DMCL. Senior officials in Belfast gave Mason the impetus. For instance, John Freeman, Deputy Chairman of the NIDA, invoked the Quigley analysis to encourage Mason to support the project. Letter from John Freeman to Roy Mason, 19<sup>th</sup> July 1978 in NA FV22/125 'De Lorean Motor Co Northern Ireland Car Assembly Project'.

**12** See contents of the file PRONI CENT1/10/18 'De Lorean 1978-1980'.

**13** McKinsey were retained by the Department of Commerce to monitor events at DMCL. See the clippings covering the period 1978-1984 taken from file entitled 'De Lorean Motor Company Press Cuttings' PRONI DED/21/6/1.

**14** 'Background Note: De Lorean Motor Company' in NA FV22/125 'De Lorean Motor Co Northern Ireland Car Assembly Project' and Minute from Department of Commerce sent to 'The Secretary' De Lorean Motor Cars Ltd, April 12<sup>th</sup> 1979 in PRONI CENT1/10/18 'De Lorean 1978-1980'.

**15** See the contents of the agreement dated June 21<sup>st</sup> 1978 in PRONI CENT1/10/18 'De Lorean 1978-1980'.

**16** See the contents of the agreement dated June 21<sup>st</sup> 1978 in PRONI CENT1/10/18 'De Lorean 1978-1980'.

**17** 'De Lorean: Situation Report, paper by K.P. Bloomfield, January 8<sup>th</sup> 1982 and 'De Lorean Motor Company', Background Note Capital structure, undated in PRONI DED/21/6/1 'De Lorean Motor Company'.

**18** See 'The Secretary of States Meeting with Mr John De Lorean and Mr Cafiero -9.15am on 5 August 1980 at Hillsborough Castle', minute by R.A. Harrington, August 6<sup>th</sup>, 1980, in PRONI CENT1/10/18 'De Lorean 1978-1980'.

**19** A Department of Commerce memo indicates that by June 1980 there was already discussion between civil servants based in both Belfast and London about whether closure should be considered. So within Whitehall, there was little optimism for the project, but it was accepted that closure would run into a range of sunk costs. 'De Lorean –Additional Funding', 27 June 1980, Department of Commerce memo, in PRONI CENT1/10/18 'De Lorean 1978-1980'.

**20** 'De Lorean', memo by J.E. Cammell, Department of Industry, July 29<sup>th</sup> 1980 in NA FV22/125 'De Lorean Motor Co Northern Ireland Car Assembly Project'.

**21** 'De Lorean Sports Car Project', letter from Humphrey Atkins to Sir Keith Joseph, July 25<sup>th</sup> 1980 in NA FV22/125 'De Lorean Motor Co Northern Ireland Car Assembly Project'.

**22** Undated draft memorandum by James Prior entitled 'Draft Memorandum by the Secretary of State for Northern Ireland' in NA FV22/125 'De Lorean Motor Co Northern Ireland Car Assembly Project'.

**23** 'De Lorean', memo dated January 1982, in PRONI DED/21/6/1 'De Lorean Motor Company'. The riot damage followed the death of Bobby Sands, who had been on hunger strike.

**24** Issues of poor quality arose from conflicts over design (Fallon and Srodes, 1984, p.230).

**25** The company art collection after liquidation was eventually bought back by John De Lorean at a fraction of the original (taxpayer funded) cost (Fallon and Srodes, 1984, p.366). In a final characteristic of extravagance in 1982, when the firm was under receivership, De Lorean summoned his board back from Belfast to New York. The seven directors flew in Concorde at a total cost of £15,000 (Fallon and Srodes, 1984, p. 385).

**26** 'US Investment in Northern Ireland: Draft Guidance for Posts', undated memo in PRONI DED/ 21/6/1 'D Lorean Motor Company'.

**27** Northern Ireland has not closed the productivity gap despite the signing of the Good Friday Agreement in 1998 and the resulting creation of a Northern Ireland Assembly. Indeed, despite a political settlement on some measures the gap may have increased. This persistent failure suggests that industrial policy since the 'peace process' has not gone far enough in tackling the region's underlying supply-side weaknesses (Mac Flynn, 2013, 2015).

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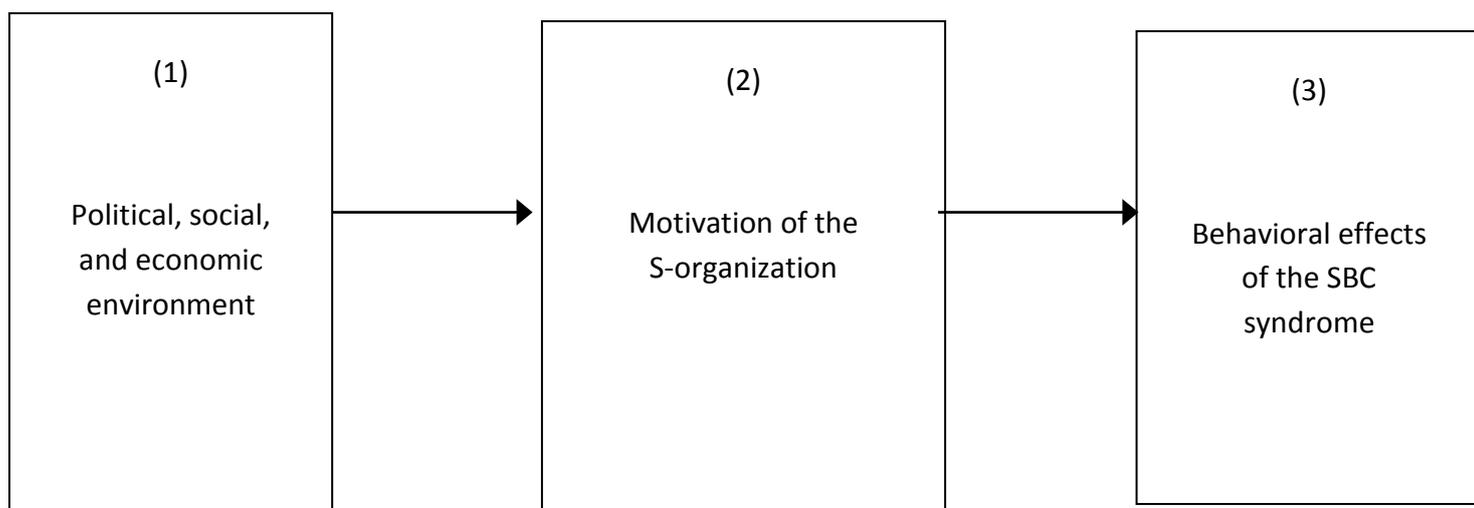
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Figure 1. SBC Syndrome: The chain of causality according to Kornai, Maskin and Roland



Source: Kornai, Maskin and Roland (2003), p. 1107.

**Table 1 Monthly Production Performance**

	<b>February</b>	<b>March</b>	<b>April</b>	<b>May</b>	<b>June</b>	<b>July</b>	<b>August</b>	<b>September</b>	<b>October</b>	<b>November</b>
<b>Plan</b>	188	818	1,663	2,858	4,543	5,423	7,103	8,463	10,223	11,903
<b>Actual</b>	-	64	483	839	1,309	1,744	2,642	3,619	4,901	6,191

Source: Data taken from Annex to Minute of Meeting HM Treasury December 9<sup>th</sup> 1981 dated December 22<sup>nd</sup> 1981 in file entitled 'De Lorean Motor Co. Northern Ireland Car Assembly Project' NA FV 22/125

**Table 2. Projected and Actual Hiring Schedule for DMCL, 1979-1982**

Year	Quarter	Projected number of workers hired	Actual numbers of workers employed in Dunmurry
1979	1	90	-
1979	2	120	-
1979	3	180	-
1979	4	283	-
1980	1	505	-
1980	2	780	-
1980	3	1,214	265 (including 23 on short-term contracts and 16 hourly paid)
1980	4	1,404	430 approx
1981	1	1,497	865
1981	2	1,734	-
1981	3	1,810	1600 approx
1981	4	1,810	-
1982	1	-	2500 approx
1982	2	-	1500 approx 200 by May 1982

Notes: Projected employment figures (1979-81) taken from PRONI DMS/2/129 entitled 'IR Intelligence De Lorean Motor Cars Ltd'. The fourth quarter 1980 and first quarter actual employee numbers 1981 taken from Fallon and Srodes (1984), p.284. Third quarter data 1981 taken from Fallon and Srodes (1984), p.303. First and second quarter data for 1982 taken from Fallon and Srodes (1984), p.413-4 and p.431