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THE OUTLIER PHENOMENON IN ENTREPRENEURSHIP AND ECONOMIC GROWTH: MOLLYCODDLING POLICIES CREATE NEW ZEALAND'S PERFECT STORM

Howard H. Frederick
New Zealand Centre for Innovation & Entrepreneurship, hfrederick@unitec.ac.nz

Erik Monsen
Max Planck Institute of Economics

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ABSTRACT

Analyzing GEM 2005 data, we confirm that entrepreneurship and economic development form a U-shaped curve. We seek to understand New Zealand's large deviation from the modeled curve by factor-analyzing all countries' deviations from the curve. We make recommendations that would move New Zealand toward the trend line and thus aid in increasing its level of economic development. Our findings indicate that measures that overprotect workers, spoil incentives, or indulge welfare passivity can stymie economic growth even in conditions of high entrepreneurial activity.

INTRODUCTION

A perfect storm is when several remotely-possible and singularly innocuous events occur at the same time, which then feed off each other and lead to a dramatic and possibly disastrous event. In such a situation, it is clear that if any one element is displaced in time or space the result would be far less powerful, but because just the right (or wrong) things were in the mix and with just the right (or wrong) timing, the situation grows out of control. This can happen on the high seas as well as in an economy. In that later case, it is sometimes labeled creative destruction. While this storm of innovation and entrepreneurship may be disastrous for some, it creates new opportunities for growth and rejuvenation for a region and its economy. In this paper we track down the factors which could potentially drive such a perfect storm of entrepreneurship and economic development. With this new knowledge, we then discuss how such a perfect storm might actually be designed for the benefit of New Zealand, as well as for other regions and countries around the globe.

Researchers have gathered evidence to examine the connection between entrepreneurship and national growth (Thurik 1999) (Audretsch 2002b) (Carree & Thurik 1999). "A mountain of empirical evidence" points to a positive and robust relationship between measures of entrepreneurship and economic performance across a broad spectrum of performance measures (Audretsch et al. 2002). OECD findings suggest that start-up rates are positively associated with economic growth among twenty countries (OECD 2001). Says Audretsch, "While traditional theories suggest that entrepreneurship will retard economic growth, these new theories suggest exactly the opposite--that entrepreneurship will stimulate and generate growth" (Audretsch 2002a:10). Indeed, Audretsch believes that "the positive link between entrepreneurship and economic growth has been indisputably verified" (Audretsch 2002b).

Exactly how much influence entrepreneurial activity has on national economic growth is a matter of ongoing debate among economists. Most now agree that entrepreneurship is responsible for much of the competition and innovation in the business world.

LITERATURE REVIEW

What are the factors that influence entrepreneurial activity and economic growth? Our model shows that entrepreneurial activity is particularly shaped by a distinct set of factors that we call the "Entrepreneurial Framework Conditions" (EFCs). Clearly, economic factors serve as the backbone to entrepreneurial activity but there are many non-economic entrepreneurial framework conditions (such as government policies and pro-grams, education and training, technology, demography, culture and social

institutions) that influence the rate of start-up entrepreneurship. The literature is extensive with references to EFCs.

One of the most cited factors is per capita income. Minniti et al (2006) shows a strong quadratic relationship between early-stage entrepreneurial activity and per capita income (a proxy for economic development) (see Figure 1). Next to per capita income, other economic factors also impact entrepreneurship. Unemployment basically acts as a push factor for self-employment (Evans and Leighton, 1990; Audretsch and Thurik, 2000), while social security and welfare benefits determine the opportunity costs of the decision of unemployed persons to seek self-employment (Noorderhaven et al. 2003). The literature also shows that income disparity can stimulate entrepreneurship as a push- and a pull-factor for self-employment (Ilmakunnas et al. 1999).

Additionally, specific technological variables (such as net access, broadband penetration and availability of computers) may play a role. Romer sees the type of knowledge especially embodied in technology as "production factors", and this has become especially evident in leading economies (Romer 1986:1003).

Demographic factors that may play a role in entrepreneurship include population growth, age distribution, proportion of ethnicities, level of educational attainment and female labor participation (Verheul et al. 2002; Wennekers et al. 2002). As regards age distribution, while start-ups occur in all relevant age groups, prevalence rates of nascent entrepreneurship are associated with certain age groups. Education is somewhat of an anomaly. Some research shows that start-up entrepreneurs have attained on average a higher educational level than those in a control sample (Delmar and Davidsson, 2000). New Zealand research also confirms that education and entrepreneurship are highly correlated (Frederick 2006). However, in a comparative study across fourteen OECD countries, a higher level of education tends to correlate with a smaller proportion of self-employment (Uhlaner et al., 2002). Some attention has focused on labor force participation by gender suggestion, for exam-ple, that the association of female labor participation with early-stage entrepreneurship is lower than men be-cause men are more likely to have the intention to start a firm than are women (Delmar and Davidsson, 2000).

Relevant institutions affecting total entrepreneurial activity include the educational system, fiscal legislation and specific government policies focused on new firms. On the demand side, regulatory policies lowering the barriers to entry and increasing competition influence the opportunities to start a business (Henrekson, 2000). On the supply side, institutions play a role in stimulating entrepreneurial capabilities and preferences. This includes such institutions as economic development agencies that help strengthen abilities and motivation, large corporations with an interest in intrapreneurship (entrepreneurial activities within a corporation), educational institutions and the media (Stevenson, 1996). The financial resources such as venture capital and start-up support schemes influence the likelihood of business start-ups. Finally, fiscal legislation (tax rates and tax breaks), the social security system (replacement rates and relative entitlements of the self-employed), labor market regulation and bankruptcy legislation are all suggested to influence the rewards and the risks of the various occupational opportunities.

The impact of taxes on the level of entrepreneurial activity is complex and even paradoxical (Verheul et al., 2002). On the one hand high tax rates reduce the return on entrepreneurship, on the other hand self-employment may offer greater opportunities to evade or avoid tax liabilities. For a selection of 12 OECD countries spanning the period 1972-1996, Parker and Robson (2003) find a significantly positive effect of personal income tax rates on self-employment. The effect of social security on entrepreneurial activity may also be two-sided. First, there is a negative impact in so far as generous social security for employees increases the opportunity costs of entrepreneurship. Second, social security in general may have a positive effect on entrepreneurial activity by creating a safety net for the case of business failure.

In summary, there are many entrepreneurial framework conditions that have been suggested to influence overall total entrepreneurial activity. The challenge is to disentangle these factors and explain differential levels of entrepreneurial activity and economic growth between individual countries and country clusters.

RESEARCH QUESTIONS AND HYPOTHESES

To understand New Zealand's unique outlier status, our research questions are:

- Which "entrepreneurial framework conditions" (EFCs) account for the most variance in predicting Total Early-stage Entrepreneurial Activity (TEEA), over and above the variance explained by GDP per capita (accounting for purchasing power parity) (GDPPC)?
- Are there differences in the relative impact of these EFCs on TEEA between the two clusters of high-income and middle-income countries?
- Based on the findings, what policy prescriptions would be recommended for New Zealand?

Our model of the basic relationship between GDPPC and TEEA is:
- $TEEA\_prime = beta\_0 + beta\_1 * GDPPC + beta\_2 * GDPPC * GDPPC$.

Given that our goal is to make predictions about New Zealand, based on inferential statistical analysis of the other GEM countries, it is statistically necessary to exclude New Zealand from the estimation of the model betas.

Using the estimated betas from this regression for the population of middle- and high-income GEM countries, we compute the theoretical TEEA_prime for each individual country, that is, where the country should lie on the U-shaped curve (e.g. quadratic function relating TEEA to GDPPC), as if GDPPC accounted for 100% of the variance. Next, computing the difference delta_TEEA between actual TEEA and TEEA_prime for each country, we then regress this value as our dependent variable against the Entrepreneurial Framework Conditions (EFCs):

- $delta\_TEEA = f (EFCs)$, where $delta\_TEEA = TEEA - TEEA\_prime$.

Based on our prior discussion of the literature, we expect to find a subset of EFCs that help (or hinder) entrepreneurial activity in all countries, as well as a subset that help (or hinder) entrepreneurial activity differently in middle- and high-income countries. Given that New Zealand's GDPPC lies between that of the middle- and high-income countries, we further will need to test which cluster and corresponding recommendations are most appropriate for New Zealand.

In accord with this model, we hypothesize:

- *H1: There is a quadratic association between TEEA and GCPPC*

- *H2: New Zealand is an outlier with respect to this association.*

- *H3: A subset of EFCs significantly account for the residual variance (delta_TEEA) of countries relative to the quadratic curve of TEEA to GCPPC, depending on a country's relative level of economic development, e.g. middle income vs. high-income.*

- *H4: A subset of these EFCs is associated with New Zealand's outlier status.*

DATA AND METHODS

Data

We use the GEM 2005 data set of 106,495 randomly selected adults in 35 countries taken in June-August 2005 (Minniti et al, 2006). We operationalize our variables thusly:

Rate of entrepreneurship. We use the GEM variable Total Early-Stage Entrepreneurial Activity (TEEA). We distinguish between two types of early-stage entrepreneurs such that:

TEEA = Number of nascent entrepreneurs (<3 months) + new entrepreneurs (3-42 months)

Level of economic development. Here we used the 2005 gross domestic product per capita adjusted for purchasing power parity (hereafter simply called GDPPC) as a proxy for economic development.

Middle-income and high-income countries. We cluster countries in two groups according to GDPPC. We use a level of US$25,000 to separate the high-income countries from the middle income countries. We do not have any low-income countries <$5,000.

Entrepreneurial framework conditions. We extract from a wide variety of sources including the World Bank, International Monetary Fund, the World Competitive Index, and the United Nations.

National expert interviews. Each GEM national team conducts up to 50 face-to-face interviews with experts who completed a questionnaire that consists of scales related to conditions favoring and disfavoring entrepreneurship in their countries.

Statistical Methods

In this study we apply a three-step statistical analysis: first, to identify which entrepreneurial framework conditions (EFCs) substantially explain the residual variance between the modeled TEEA and the actual TEEA; second, to identify if there are substantial differences in the impact of these parameters between middle- and high-income countries; and third, to confirm if New Zealand exhibits corresponding EFCs that relate to above-average levels of TEEA.

In the first step, the correlation coefficients between delta_TEEA and the available EFCs is computed separately for the middle- and high-income countries. Depending on the statistical significance and the sign of the pairs of correlation coefficients, the variables are assigned to one of the nine quadrants in a 3x3 grid (see Figure 2).

Next, to test if the difference between the two correlation coefficients is statistically significant, we first need apply a Fisher's *z'* Transformation to the two correlation coefficients. Following Cohen & Cohen (1983: 53-55), the two z' scores are computed as follows: $z' = \frac{1}{2} [\ln (1 + r) - \ln (1 - r)]$. Next a final *z* score is computed with the following formula, which accounts for differences in group sizes:

$$ z = \frac{z'_1 - z'_2}{\sqrt{\dfrac{1}{n_1 - 3} + \dfrac{1}{n_2 - 3}}} $$

The significance level of the difference between the two transformed correlation coefficients is then determined. For example, a difference of 1.96 would correspond to the two-tailed $\alpha = .05$ criterion.

Third, to determine if this subset of variables contributes to New Zealand's relatively high TEEA level, it is necessary to compute a normalized measure of New Zealand's EFCs, relative to the two populations of middle- and high-income countries. To achieve this, we compute the difference between New Zealand's EFCs and the average EFCs of the two populations, and then divide that difference by the

standard deviation of the respective population. With these standardized values, we can compare the relative deviation from the "norm" of the various EFCs and discuss those differences in terms of measure-independent and population-independent standard deviations.

Limitations of Data and Methods

There are numerous limitations of this study. The adult population sample of GEM countries ranges in error rate due to differing sampling sizes. The comparative national measures used may not well serve as proxies for the entrepreneurial framework conditions mentioned in the literature. There are other entrepreneurial frame-work conditions mentioned in the literature which we did not test. The sample of countries tested may not be representative, or their numbers (N) may be insufficient. Further research should involve factor analysis and multivariate data analysis with a large sample of countries. In addition, time lag correlations should be computed to test for causality instead of simple correlation. Finally, the data points based on surveys of experts' opinions may differ in quality and statistical performance from the harder economic variables.

RESULTS

H1: There is a quadratic association between TEEA and GCPPC

Regarding our first hypothesis, that there is a quadratic association between entrepreneurial activity and economic development, we computed correlations between our proxies TEEA / GDPPC and then fitted a trend line.

Based on a comparison of R-squared values, while the linear specification is significant (Rsq = .162, Sig = .016), the quadratic "U-shaped" trend is a much better fit (Rsq = .395, Sig = .000). Interestingly, we notice as well that the cubic "S-shaped" specification (Rsq = .395, Sig = .001) replicates the quadratic function, and thus does not explain any additional variance for this constellation of GEM countries. Therefore, we can accept H1. TEEA declines as countries attain higher GDPPC until GDPPC reaches nodal point at about US$25,000-27,000. Then TEEA rises slowly and steadily as per capita GDP rises. One might expect that the curve would ultimately turn down as the rate of entrepreneurial activity in the super-rich countries decreases, but we do not see this trend in this data. The countries in the upper left-hand quadrant are all developing countries with high levels of TEEA but low GDP PPP per capita. Countries in the $10,000-$25,000 range tend of have the lowest rates of TEEA. European countries, which have increasingly unified policies, all cluster together. The Anglo-Saxon countries seem to group on the right-hand side of the curve.

H2: New Zealand is an outlier with respect to this association.

Hawkins (1980) captures the concept of an outlier as "an observation that deviates so much from other observations as to arouse suspicion that it was generated by a different mechanism". Perhaps there is something suspicious about New Zealand as it hovers by itself considerably above the trend line. The traditional conservative definition of an outlier is an observation that lays two-and-a-half standard deviations from the mean (Barnett & Lewis 1994).

Thus we can confirm H2 with New Zealand at 2.95 SD, but also for Venezuela at 2.69 SD--based on the traditional definition of outlier. When we exclude New Zealand and Venezuela from our curve fit, the quadratic trend increased from Rsq = .395 to Rsq = .500 while the cubic specification increased from Rsq = .395 to Rsq = .501, both at the .000 level of significance, thus further confirming H1.

However, outliers also have other definitions since the traditional definition does not scale well in large datasets or in marked quadratic relations. Distance-based outlier detection methods are common

where the measure of an entity's "outlierness" is based on its distance to nearby entities. The number of nearby observations and the distance between them (specified radius from a data point) are used to identify "data neighborhoods". Knorr and Ng (1998) leave it to the researcher to determine the distance (in feature space) and the fractions or groupings of the rest of the data set. By this measure, we must say that New Zealand is in a class by itself. New Zealand's high rate of early-stage entrepreneurship (for five years running in GEM) is differently associated with economic development from the other countries in the sample.

H3: A subset of the EFCs significantly account for the residual variance (delta_TEEA) of countries relative to the quadratic curve of TEEA to GCPPC, depending on a country's relative level of economic development, e.g. middle income vs. high-income.

We then ran correlations using delta_TEEA as the dependent variable against national comparative variables such that delta_TEEA = f (Entrepreneurial Framework Conditions), according to our model. We calculated Pearson's r and their significances for both our middle-income and high-income country clusters. These could be either positive or negative correlations, or there could be a neutral effect. In the end, we were especially interested in the "effect size" of the variables. For example, variables might tend to be negatively associated with middle-income countries and positively associate with high-income countries. To simplify the analysis, we report the nine types of impacts. As diagrammed in Figure 2, we put each finding into one of nine categories: Variables in the I - III boxes tended to have a negative impact; V had a neutral impact; IV and VI had a differential impact (positive-negative or negative-positive impact); and VII – IX had a positive impact. (Variables in Box V are not reported since they have no impact either way.)

Which variables differentiate between middle-income and high-income countries in terms of their position on the TEEA / GDPPC curve? Which variables tend to have positive, negative or differential influences on a country's entrepreneurial activity and economic growth? We found 25 variables that had a significant effect size of <0.10.

 (1) Nine variables tended to have a *negative influence* on a countries position on the TEEA / GDPPC curve. Five (Box II) tell a story about the high-income countries and four (Box III) about the middle-income countries. Here we are interested in effect sizes as well as the actual correlations. The variables with negative influences were:
- Two measures of business efficiency or productivity: GDP/EMPLOYED IN INDUSTRY and GDP/EMPLOYED IN SERVICES
- TAX REVENUE % GDP
- % MALES THAT ARE 55-64 YEARS
- PUBLIC HEALTH % TOTAL SPENDING
- Three intellectual property variables: (1) respect for inventors' rights; (2) enforcement of IPR legislation; and (3) respect for patents, copyrights, and trademarks
- High selectivity when choosing recipients of entrepreneurial support has a negative impact in both country clusters.

Our findings tend to give credence to the assertion by many, including entrepreneurs themselves, that high tax rates reduce the rate of entrepreneurship and economic growth. Similarly, public health spending has a significant negative effect. This supports the observation particularly in the Nordic countries where entrepreneurial activity may be inhibited by high levels of welfare spending.

The finding on the prevalence of older males explains why a country such as Japan, which has one of the world's highest "top-heavy" population pyramids, is among the least entrepreneurial countries.

Curious are the findings on the protection of intellectual property rights (IPR). According to our data, IPR protection has a negative effect. These findings suggest that that an unfettered IPR regime characterized by un-hampered use of intellectual property actually raises the level of entrepreneurial activity.

Another interesting finding is the negative impact of using highly selective criteria in choosing recipients of entrepreneurial grants. This goes against the "pick winners" orthodoxy. It may actually be that highly selective growth policy measures are less critical. Just give people funding and assistance and this will lead to entrepreneurial activity and growth.

(2) Let's look now at the reverse side of the coin. Seven variables tend to have a *positive impact* on a countries position on the trend line (Box VII-IX).
- Start-up firm size (average number of owners in a new venture)
- Two cultural variables: (1) media exposure about entrepreneurs and (2) a national culture encouraging entrepreneurial risk-taking.
- Agricultural sector productivity.
- Two demographic variables:
  - % FEMALES THAT ARE 45-54 YEARS and the
  - MALE TEEA OPPORTUNITY RATE.

The greatest effect size comes from media publicity about successful entrepreneurs. This would encompass entrepreneurs as role-models and their position in society. The level of entrepreneurial risk-taking in society also has a large effect size. This explains why low risk-taking cultures such as Germany have a lower level of entrepreneurial activity.

The number of owners in a new venture also has a positive impact. This may show that spreading the risk among more owners has a positive effect on economic growth and entrepreneurial activity.

One of our most noteworthy findings is the large effect size of agricultural sector productivity. One can surmise that low agricultural productivity in the middle-income countries would inhibit entrepreneurial activity and economic growth. But the large positive impact of the farming community in high-income countries has not previously been reported in the literature, to our knowledge. It may be that where farmers are contributing value-added products, especially in high-income countries, this contributes to entrepreneurship and the economy. This would be particularly true in a commodity-driven, pastoral economy such as New Zealand.

The demographic variables also paint an interesting picture. The male opportunity entrepreneurship rate does make a big difference in a country's position, but so does the number of 45-54 year old females. It is unclear whether this means women as supporters (co-preneurs) of their male opportunity entrepreneurs or start-up venturers themselves. In either case—whether mothers of the economy or *Powerfrau* venturers--these women "of a certain age" have a significant effect.

(3) Finally, we identified three variables with highly significant effect sizes that have *differential impacts* (positive for one and negative for the other country cluster). These variables tell stories about both country clusters.
- For the rich countries, the Index of Economic Freedom score has a strong negative impact while this is just the reverse in the middle-income countries.
- Two cultural variables:
  - (1) Highly individualistic cultures have a negative impact in middle-income countries while in the high-income countries individualism has positive impact; and
  - (2) The rate of creativity and innovativeness in the middle-income countries has a negative impact while in the high-income countries it is just the reverse.

The Index of Economic Freedom measures government "interference" in the economy. In the middle-income countries, government intervention has a significant positive impact while it is just the reverse in the high-income countries. This may show that government "pump-priming" through intervention particularly in business and innovation policies may assist in an entrepreneurial take-off. But once economic growth has been achieved, it has a negative effect.

A fascinating finding appears with the measure of individualism. The rugged, self-maximizing individualistic entrepreneur, so prevalent as an "ideal type" in the literature, is only half the picture. In poorer countries, collective entrepreneurship, where individual wealth creation is subsumed to the benefit of the group, has a greater impact.

Similarly, creativity and innovativeness have a differential effect. Entrepreneurs in middle-income countries need not be the most innovative; they should rather exploit existing equilibrium opportunities and optimize supply and demand in established markets. Innovativeness and creativity however have a positive effect in high-income countries where entrepreneurs should exploit innovative venture opportunities and create new markets.

Thus we can confirm our Hypothesis 3 with some interesting results.

H4: A subset of these EFCs is associated with New Zealand's outlier status.

Finally, we seek to use the data to explain the differences between the outlier New Zealand and the two country clusters. Here we calculate the significance of the difference between New Zealand's reported EFCs and on the one hand the EFCs of the middle-income countries and on the other hand the EFCs of the high-income countries. Beginning with the set of EFCs identified as being significant in explaining why a country's TEEA would diverge from the trend line (lie above or below the u-shaped curve), we first identify the subset of those parameters where New Zealand is significantly different from both middle income and high-income countries.

What distinguishes New Zealand's outlier status from both middle-income and high-income countries? The following New Zealand factors are significantly different from both clusters.

- SELECTIVITY. New Zealand differs from both country clusters on the high selectivity of entrepreneurs for support initiatives measure. Among the 35 countries in the 2005 GEM sample, New Zealand has the highest value of selectivity for entrepreneurial support measures. As New Zealand lies right in the middle of the income spectrum (it crossed from middle- to high-income in 2005), depending if we view New Zealand as a middle or high-income country, this would correspond to lower or higher reported TEEA rates, respectively.
- ECONOMIC FREEDOM. New Zealand has a significantly greater degree of economic freedom than both country clusters. Depending if we view New Zealand as a middle or high-income country, this would correspond to lower or higher reported TEEA rates, respectively.
- MALE OPPORTUNITY ENTREPRENEURSHIP. New Zealand has a significantly greater degree of male opportunity entrepreneurship than both country clusters. Indeed, New Zealand has some of the highest male opportunity entrepreneurship rates ever recorded in GEM. Again, in both middle and higher-income countries, this would support the higher TEEA rates reported in New Zealand.

Then we look at factors that significantly separate New Zealand from the high-income countries only. These would include

- DEMOGRAPHICS. Currently New Zealand has substantially fewer males who are 55 to 64 years old and substantially fewer females who are 45 to 54 years old. While fewer older males correlates to a higher TEEA rate, fewer middle-aged females correlates with a lower TEEA rate. In should be noted that the New Zealand median age will be 45 years by 2045, comparable to Germany (51 years).
- OWNERSHIP. While firms in New Zealand have significantly fewer owners than high-income countries, this factor does not correlate to more or less TEEA in those countries. It should be noted, however, that we saw that firms with larger numbers of owners have a positive impact on the trend line in middle-income countries.

Finally, we examine factors that significantly separate New Zealand from the middle-income countries only. These would include

- HEALTH SPENDING. Compared to middle-income countries, New Zealand has significantly more public health spending and significantly less private health spending. It should be noted that in high-income countries public healthcare spending is associated with decreased TEEA and private healthcare spending with increased TEEA.
- IPR PROTECTION. Higher levels of intellectual property protection (respect for inventors rights; efficient enforcement of intellectual property rights legislation; and respect for patents, copyrights, and trademarks) are associated with lower levels of TEEA in middle-income countries. This would suggest that New Zealand's above average scores in this area should correspond to lower levels of TEEA, and not the observed higher levels.
- CULTURAL FACTORS. GEM data show New Zealand is above average in terms of business risk-taking when compared to middle-income countries. In particular, the data suggest that the national culture in New Zealand emphasizes individual over collective responsibility in managing one's own life, encourages creativity and innovativeness, encourages entrepreneurial risk-taking, and promotes successful entrepreneurs in the media. While these above average ratings would correspond to lower TEEA in middle-income countries, they contrarily correlate to higher TEEA in higher-income countries.
- AGRICULTURAL SECTOR PRODUCTIVITY. New Zealand farmers have high rates of productivity, which we see in the data when compared to middle-income countries. While these above average ratings would correspond to lower TEEA in middle-income countries, they contrarily correlate to higher TEEA in higher-income countries.

In summary, while there are a number of factors which directly support Hypothesis 4, there are several others which provide only mixed support for the hypothesis.

CONCLUSION

In this paper we have confirmed that there is a quadratic association between entrepreneurial activity and economic development. We have confirmed that New Zealand is in a class by itself as an outlier to this trend. We have further confirmed that a subset of the EFCs significantly account for the residual variance of countries in our sample relative to the quadratic curve of TEEA to GCPPC, and that this depends on a country's relative level of economic development, e.g. middle income vs. high-income. Finally, we have confirmed that subset of EFCs is associated with New Zealand's outlier status, a number directly supporting our Hypothesis and others providing only mixed support.

This paper has a number of implications for New Zealand and the rest of the world. The lessons of what is holding New Zealand in outlier space (i.e. high TEEA rate without correspondingly high GDPPC) arouse our suspicion that different entrepreneurship-generating mechanisms may be at work compared to other countries. Thus, policy proscriptions for New Zealand need to be different from other countries.

From a policy perspective, the goal of New Zealand's current (1999-present Labor-led Government) is to return the country to the top half of OECD rankings, from which it fell after severing economic ties with Great Britain in 1974. But we believe the New Zealand case demonstrates that certain unhealthy, non-growth-oriented factors may be preventing its high TEEA from translating into high GDPPC.

Our counter-intuitive recommendation would be to contemplate policies that would *temporarily reduce the New Zealand's inflated TEEA rate* in order to let loose factors that could lead to general economic growth. We have identified and placed a top-five list of significant factors into a group we call "mollycoddling" (overprotective) factors. These would include:

- TAXES. In high-income countries, entrepreneurs thrive under a moderate tax regime. But according to the World Bank, total tax payable in New Zealand is 44.2% of growth profit. By comparison, the US weighs in at 21.5% (World Bank, 2005). While the intuitive long-term pro-entrepreneurship policy proscription here would be to lower the corporate tax rate, in New Zealand's case the short term anti-coddling policy would actually be to raise tax rates, perhaps in a selective fashion, to generate revenues that can be directed to growth-oriented ventures.
- HEALTH SPENDING. Entrepreneurs thrive in a low-welfare-state environment. Averaging about 84%, the Scandinavian countries have the highest public health spending as a proportion of total health spending and some of the lowest TEEA rates in the world. New Zealand comes in second at 78% (Statistics New Zealand, 2006). By this measure, while our long-term intuitive recommendation would be to lower the health security blanket (as well as other welfare measures that ease the pain of unemployment), in the short term in New Zealand's case we would recommend maintaining or even increasing public health care spending, perhaps until the economy picks up and growth-oriented entrepreneurs can privately cover health-care costs.
- ECONOMIC FREEDOM. New Zealander entrepreneurs might contribute more to economic growth if New Zealand was, once again counter-intuitively, more interventionist and helped guide entrepreneurial activities in the direction of economic growth instead of toward life-style ventures that promote independence and satisfaction at the cost of growth and wealth creation.
- AGRICULTURAL SECTOR PRODUCTIVITY. New Zealand farmers for decades have had world-rank rates of productivity (without subsidies) and that performance contributes to holding New Zealand in outlier space. Again counter-intuitively, agricultural sector productivity should be allowed to decline along with efforts to increase manufacturing and service productivity.
- FUNDING SELECTIVITY. The New Zealand rate of selectivity in choosing grant recipients is the highest in the world, according to our data. We believe this selective pampering of some to the detriment of many may be mistaken.

The bottom line is that New Zealand's "perfect outlier storm" may have something to do with what we call "mollycoddling policies" (where workers are pampered and enterprise is spoiled by what can only be described as a socialist government). It would fly in the face of New Zealand's current Labour-driven orthodoxy to suggest raising corporate taxes, not protecting worker health, increasing government intervention, not "picking winners", and loosening dependence on agricultural productivity. However, these are the conclusions we reach from the data. Sometimes you need to sail directly into a wave to avoid being capsized and sunk by it.

What we are suggesting that that New Zealanders need to embrace a universe that is in part more Hobbesian. The current "Kiwi entrepreneurial conundrum" of high entrepreneurial activity and lower economic development comes from a singular constellation of events that disfavor "creative destruction" in the Schumpeterian sense.

New Zealand clearly wants to move to the right along the spectrum of increasing GDPPC, possibly even downward at a loss of entrepreneurial activity, to a higher level of economic development closer to countries such as Iceland, Australia and United States, and Canada, which have lower TEEA but higher GDPPC (see Figure 1). This may not be possible under current conditions.

For the rest of the world, this study demonstrates that

- High entrepreneurship rates do not always translate into corresponding economic growth
- Policy measures need to be customized to local conditions
- Measures that overprotect workers, spoil incentives, or indulge welfare passivity can stymie economic growth even in conditions of high entrepreneurial activity.

CONTACT: Howard Frederick; School of Management & Entrepreneurship, Unitec New Zealand, Private Bag 92025, Mt Albert, Auckland, New Zealand; (T): +64 9 815 4321 x7016; hfrederick@unitec.ac.nz

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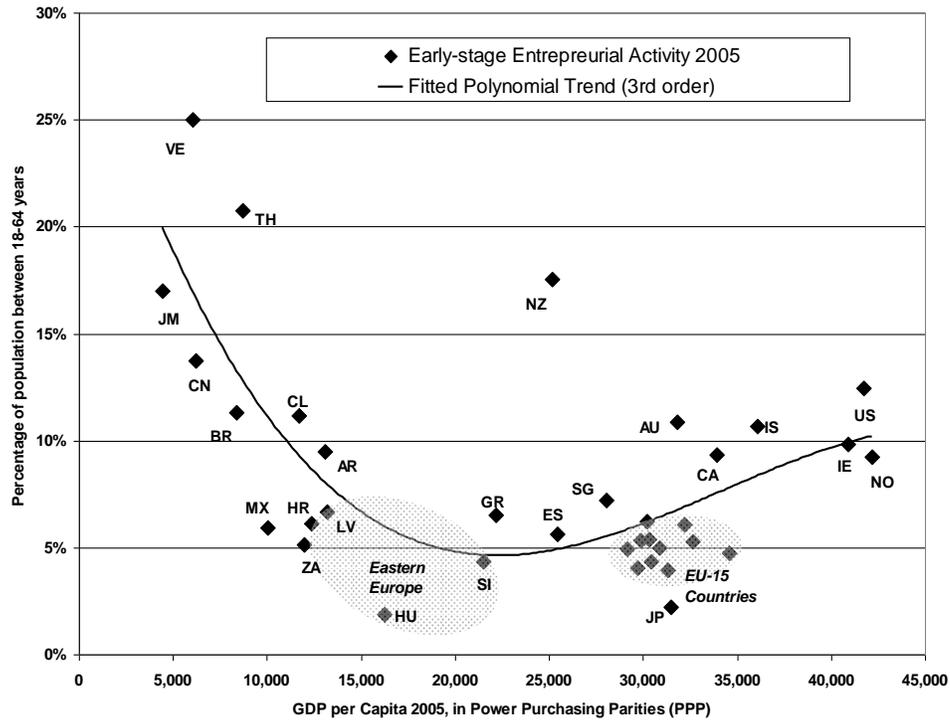Figure 1. TEEA by GDPPC, Fitted Curve, 2005, (Minniti et al, 2006)
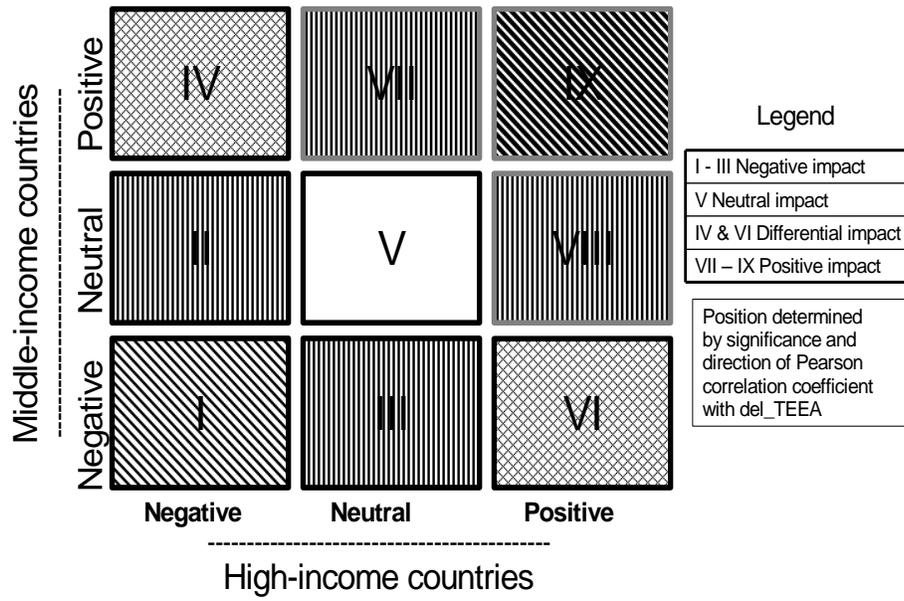
Figure 2. Map of differential impact of variables

Table 1. Significant Entrepreneurial Framework Conditions, sorted by effect size

Entrepreneurial Framework Conditions Variable		Middle-income	High-income	Effect size	MI versus NZ	HI versus NZ
		Pearson	Pearson	DZ	D(NZ-MI)/SD	D(NZ-HI)/SD
I-III: VARIABLES TENDING TO HAVE A NEGATIVE INFLUENCE (There were no variables in Category I "Negative influence in both")						
NEUTRAL INFLUENCE IN MIDDLE-INCOME AND NEGATIVE INFLUENCE IN HIGH-INCOME						
II	GDP [PPP]/EMPLOYED IN INDUSTRY 2004, US$. GDP (PPP) per person employed in industry, 2004. Calculated as RGDP04 * (%GDP Industry/100)	0,510	-0,410 +	2,340 *	-0,641	-0,237
II	TAX REVENUE, % GDP: 2003. Tax revenue as a percentage of the GDP, 2003. Measured in local currency and normalized by scaling variables in the same unit. Data refer to Central Government revenue only.	-0,024	-0,698 **	2,026 *	0,804	0,370
II	GDP [PPP]/EMPLOYED IN SERVICE 2004, US$. GDP (PPP) per person employed in services, 2004. Calculated as RGDP04 * (%GDP Services /100)	0,380	-0,410 +	1,950 +	-0,676	-0,241
II	% MALES 00-99 THAT ARE 55-64 YR, MALE: 2005. Percent of the male population that are between 55-64 years of age	-0,208	-0,696 ***	1,673 +	0,559	-1,293 *
II	PUBLIC HEALTH, % TOTAL SPENDING:1997-2002. Public health spending as a percentage of total spending, 2002	0,090	-0,490 *	1,620 +	1,561 *	0,508
NEUTRAL INFLUENCE IN HIGH-INCOME AND NEGATIVE INFLUENCE IN MIDDLE-INCOME						
III	Government programs are highly selective when choosing recipients of entrepreneurship support (1 thru 5). Expert survey.	-0,657 *	0,385	2,792 **	2,423 **	1,555 *
III	It is widely recognized that inventors' rights for their inventions should be respected (1 thru 5). Expert survey.	-0,737 **	-0,062	2,063 *	1,791 *	-0,132
III	The Intellectual Property Rights (IPR) legislation is efficiently enforced (1 thru 5). Expert survey.	-0,568 +	0,133	1,823 +	1,778 *	-0,804
III	New and growing firms can trust that their patents, copyrights, and trademarks will be respected (1 thru 5). Expert survey.	-0,589 *	0,076	1,761 +	1,791 *	-0,132
IV & VI: VARIABLES HAVING A DIFFERENTIAL IMPACT						
POSITIVE INFLUENCE IN THE MIDDLE-INCOME AND NEGATIVE INFLUENCE IN THE HIGH-INCOME COUNTRIES						
IV	INDEX OF ECONONOMIC FREEDOM: 0=MAX FREE: 2005. Index of Economic Freedom, overall score 2005. Measure of government interference in the national economy; higher numbers imply more interference.	0,524 +	-0,446 *	2,743 **	-1,944 *	-1,067 *
NEGATIVE INFLUENCE IN THE MIDDLE-INCOME AND POSITIVE INFLUENCE IN THE HIGH-INCOME COUNTRIES						
VI	The national culture emphasizes the responsibility that the individual (rather than the collective) has in managing his or her own life (1 thru 5). Expert survey.	-0,535 +	0,587 *	2,973 **	1,041 *	-0,174
VI	The national culture encourages creativity and innovativeness (1 thru 5). Expert survey.	-0,504 +	0,441 +	2,404 *	2,296 **	0,853
VII-IX: VARIABLES TENDING TO HAVE A POSITIVE INFLUENCE						
NEUTRAL INFLUENCE IN THE HIGH-INCOME AND POSITIVE INFLUENCE IN THE MIDDLE-INCOME COUNTRIES						
VII	Start-up firm size (Average number of owners in a start-up venture)	0,630 *	-0,064	2,082 *	-0,700	-1,009 *
NEUTRAL INFLUENCE IN THE MIDDLE-INCOME AND POSITIVE INFLUENCE IN THE HIGH-INCOME COUNTRIES						
VIII	You will often see stories in the public media about successful entrepreneurs (1 thru 5). Expert survey.	-0,431	0,452 +	2,219 *	1,060 *	-0,077
VIII	AGRICULTURAL SECTOR PRODUCTIVITY 2004. Productivity refers to the GDP in Purchasing Power Parity per employed.	-0,554	0,507 *	2,069 *	2,609 **	0,133
VIII	The national culture encourages entrepreneurial risk-taking (1 thru 5). Expert survey.	-0,170	0,556 *	1,871 +	1,636 *	0,319
VIII	% FEMALES 00-99 THAT ARE 45-54YR,FEMALE:2005. Females age 20 to 24 years as a percentage of total female population 0-99, 2005. Calculated	-0,259	0,389 +	1,749 +	0,145	-1,289 *
VIII	PRIVATE HEALTH, % TOTAL SPENDING, 1997-2002. Private health spending as a percentage of total spending, 2002	-0,090	0,490 *	1,620 +	-1,561 *	-0,508
POSITIVE INFLUENCE IN BOTH						
IX	TOTAL EARLY-STAGE ENTREPRENEURIAL ACTIVITY (TEEA) INDEX, 2005. MALE OPPORTUNITY RATE: 18-64 YRS. Total early-stage entrepreneurial activity among males of the opportunity type.	0,840 ***	0,490 *	1,750 +	2,991 **	4,220 ***

Note: + p < .10; * p < .05; ** p < .01; *** p < .001