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## **Measuring the Effect of Bankruptcy Laws on Entrepreneurship across Countries**

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### **Abstract**

Two recent papers examine the impact of corporate bankruptcy laws on new business start-ups in 29 countries over 1990 - 2008 (Peng et al., 2010; Lee et al., 2010). In this commentary, I briefly point out two significant issues which future researchers might want to consider. First, several countries in the data examined had changed their personal and corporate bankruptcy laws over the years studied. It is statistically inappropriate and inaccurate to treat bankruptcy laws as time invariant, as in Peng et al. (2010) and Lee et al. (2010), particularly in view of the dramatic changes in bankruptcy laws over time in so many countries. Second, Peng et al. (2010) and Lee et al. (2010) have a misplaced focus on corporate bankruptcy law while ignoring personal bankruptcy law. This focus is at odds with theory and prior work on topic which relates entrepreneurship to personal bankruptcy law.

Two recent papers examine the impact of corporate bankruptcy laws on new business start-ups in 29 countries over 1990 - 2008 (Peng et al., 2010; Lee et al., 2010). In this comment, I briefly point out two significant issues which future researchers might want to consider. First, several countries in the data examined had changed their personal and corporate bankruptcy laws over the years studied. For example, a number of European countries including Austria, Belgium, Denmark, Finland, France, Germany, and the Netherlands changed their bankruptcy laws to such a degree that they modified the availability of a “fresh start”, while other countries modified the number of years until a fresh start was available, such as Canada and the U.K. These changes were documented and coded by Armour and Cumming (2006, 2008). Moving from a regime without a fresh start to one with a fresh start is such a dramatic change that it is effectively a completely different regime, and as such it is simply wrong to treat bankruptcy laws for these countries as being time invariant over the years 1990 - 2008.

The cross-country and time-variant bankruptcy legal data coded by Armour and Cumming (2008) was made available to a broad audience in 2005 through posting online at [www.ssrn.com](http://www.ssrn.com) (<http://ssrn.com/abstract=762144>) and, moreover, was directly sent to the authors of the Peng et al. (2010) and Lee et al. (2010) papers in 2008 by Cumming, Sapienza, Siegel, and Wright (2009). Armour and Cumming (2008, Table 1 and Appendix) provide the actual legal sources and coded indices that can be used by others interested in carrying out similar research; these indices are not available in other sources. I provide these legal indices in Table 1 and encourage others with an interest in studying cross-country differences in entrepreneurship to consider not merely differences across countries but also differences over time.

To treat bankruptcy laws as time invariant over the years 1990-2008 for the countries considered in Peng et al. (2010) and Lee et al. (2010) is tantamount to not empirically studying the effect of bankruptcy laws on entrepreneurship, but rather, examining how countries themselves are different due to correlations with other legal variables (e.g., La Porta et al., 1998) and cultural variables (Hofstede et al., 2002). In view of the vast changes in bankruptcy laws across countries and over time, it is necessary and appropriate to consider difference-in-differences estimates with country - fixed effects and corrections for autocorrelation in the dependent variable (Bertrand et al., 2004); these procedures were implemented by Armour and Cumming (2008). Failure to consider legal changes over time and autocorrelation in the dependent variable and country - fixed effects with panel data (as in Peng et al., 2010, and Lee et al., 2010) is equivalent to regressing “noise on noise” (Bertrand et al., 2004).

Second, Peng et al. (2010) and Lee et al. (2010) use indices of corporate bankruptcy laws taken from the summary statistics developed by Classens and Klapper (2005). As a theoretical matter, these statistics were developed to explain how often companies use bankruptcy procedures in different countries after incorporation. Related work shows how the costs of incorporation affect entrepreneurial activity (Djankov et al., 2002; Klapper et al., 2006; Van Stel et al., 2007). For the different context of explaining rates of entrepreneurship in reference to bankruptcy law, *personal* bankruptcy law is widely regarded as having a direct influence on entrepreneurship since creditors frequently demand personal guarantees from owner-managers, which constitute a “contracting out” of the liability - shield incorporation otherwise given to the entrepreneur. Further, prior to incorporation entrepreneurs typically have to use personal finances, which of course ties directly to personal bankruptcy law. As such, while not considered by Peng et al. (2010) and Lee et al. (2010), other prior work that studies the rates of entrepreneurship in reference to bankruptcy laws has, in fact, considered

**Table 1. Summary Statistics for Bankruptcy Indices**

This table summarizes the bankruptcy indices used in the empirical analyses in the subsequent tables for each country and each year. Sources: compiled from the bankruptcy statutes from each country, as presented in Armour and Cumming (2008).

	<b>Discharge Available?</b> Takes value 0 if discharge available, 1 if not available.	<b>Discharge Years:</b> If discharge available, value is number of years until typical discharge; if discharge unavailable, value is life expectancy minus 40.	<b>Minimum capital to form private company, in 2005 Euros (1/E).</b>	<b>Exemptions:</b> This relates to prebankruptcy assets which are exempted from the bankrupt estate and so retained by the debtor. Takes value 1 if exemptions of assets from the bankruptcy estate cover only personal items, tools of trade, etc. Takes value 0 if exemptions are more generous. Takes value 2 if exemptions are 'negative', i.e. spousal property can be pulled into the estate.	<b>Disabilities:</b> This relates to restrictions on the debtor's civil and economic rights related to bankruptcy. Takes value 0 if no disabilities other than loss of power to deal with assets in bankrupt estate; Takes value 1 for civic disabilities (i.e. loss of right to vote, hold elected office, membership of professional groups); Takes value 2 for economic disabilities (i.e. restrictions on obtaining credit, being involved in the management of a company); Takes value 3 for interference with mail and/or travel (i.e. prohibition on travel) without consent, mail opened by trustee); Takes value 4 if debtor may be incarcerated for non-payment of debts.	<b>Composition:</b> This relates to the possibility of agreeing a composition with creditors as a means of terminating an existing bankruptcy proceeding. The variable takes a value between 0 and 2, and is the sum of (v + c), where v is proportion of face value of existing creditors' claims and c is proportion of number of creditors, who must vote in favour to effect a compromise.
Austria	1990-1994: 1; 1995-2005: 0	1990-1994: 37; 1995-2005: 7	1990-2005: €5000	1990-2005: 2	1990-2005: 0	1990-2005: 1.25
Belgium	1990-1997: 1; 1998-2005: 0	1990-1997: 37; 1998-2005: 0	1990-1998: €174; 1999-2005: €18500	1990-2005: 1	1990-2005: 3	1990-1997: 1.25; 1998-2005: 1
Canada	1990-2005: 0	1990-1992: 1; 1993-2005: 0.75	1990-2005: €0	1990-2005: 0	1990-2005: 2	1990-2005: 1.16
Denmark	1990-2004: .5; 2005: 0	1990-2004: 5; 2005: 3	1990-1991: €10732; 1992-1996: €26831; 1997-2005: €16769	1990-2005: 1	1990-2005: 3	1990-2004: 1.4; 2005: 1.35
Finland	1990-1992: 1; 1993-2005: 0	1990-1992: 37; 1993-2005: 5	1990-2005: €2500	1990-2005: 1	1990-2005: 3	1990-2005: 0.8
France	1990-1993: 0; 1994-2005: .5	1990-2005: 0	1990-2002: €7500; 2003-2005: €0	1990-2005: 2	1990-1994: 1; 1995-2005: 2	1990-2005: 0
Germany	1990-1998: 1; 1999-2005: 0	1990-1998: 37; 1999-2000: 7; 2001-2005: 6	1990-2005: €25000	1990-2005: 0	1990-1998: 3; 1999-2005: 1	1990-1998: 1.25; 1999-2005: 1
Greece	1990-2005: 1	1990-2005: 20	1990-1992: €587; 1993-1998: €8804; 1999-2002: €17608; 2003-2005: €18000	1990-2005: 1	1990-1997: 4; 1998-2005: 3	1990-2005: 1.46
Ireland	1990-2005: 0	1990-2005: 12	1990-2005: €0	1990-2005: 1	1990-2005: 2	1990-2005: 1
Italy	1990-2005: 1	1990-2005: 38	1990-2003: €10300; 2004-2005: €10000	1990-1992: 2; 1993-2005: 1	1990-2005: 3	1990-2005: 1.16
Netherlands	1990-1998: 1; 1999-2005: 0	1990-1998: 38; 1999-2005: 3	1990-2005: €18000	1990-2005: 2	1990-2005: 0	1990-1994: 1.46; 1995-2005: 1
Spain	1990-2005: 1	1990-2005: 15	1990-2005: €5000	1990-2005: 1	1990-2005: 3	1990-2003: 1.1; 2004-2005: 0.5
Sweden	1990-2005: 1	1990-2005: 10	1990-2005: €10749	1990-2005: 1	1990-2005: 2	1990-2005: 2
UK	1990-2005: 0	1990-2003: 3; 2004-2005: 1	1990-2005: €0	1990-2005: 1	1990-2005: 2	1990-2005: 1
USA	1990-2005: 0	1990-2005: 0	1990-2005: €0	1990-2005: 0	1990-2005: 1	1990-2005: 1

and focused on personal bankruptcy laws (Jackson, 1985, 1986; Alder et al., 2000; Insolvency Service (UK), 2001; Georgakopoulos, 2002; Fan and White, 2003; Berkowitz and White, 2004; Baird and Morrison, 2005; White, 2005; Armour and Cumming, 2006, 2008; Ayotte, 2007).

The impact of the availability of a fresh start in personal bankruptcy is worth highlighting (White, 2005). A forgiving bankruptcy law, in particular one that offers a fresh start from pre-bankruptcy debts, will permit inframarginal entrepreneurs (those who are willing to become entrepreneurs even in the absence of insurance) to re-enter the economy rapidly after a business failure (Georgakopoulos, 2002; Ayotte, 2007). With an unforgiving bankruptcy law and no discharge from pre-bankruptcy debts, the entrepreneur must pay the majority of her future income to past creditors. A more forgiving bankruptcy law, measured in a way that includes the possibility of a fresh start, may unambiguously be expected to be associated with a greater overall level of entrepreneurship—both by increasing entry at the margin and by increasing re-entry within the margin. The availability of a fresh start, among other things in bankruptcy law, has varied considerably over time in different countries around the world. Future research would fruitfully make use of such time series changes to better understand how bankruptcy laws are, in fact, related to entrepreneurial friendliness.

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