

diseño de medicamentos. En este escenario, las grandes farmacéuticas han implementado diversas estrategias para mantener sus ganancias como reorientar sus actividades hacia el nuevo «paradigma genómico», abarcar un número creciente de productos como las medicinas genéricas y reducir el costo de investigación a través de la celebración de contratos con centros públicos de investigación. Con ello aprovechan el talento de personal altamente cualificado, así como la tecnología punta que existe en estas entidades, sin efectuar inversiones considerables. En este caso, sin embargo, las actividades de las instituciones públicas no repercuten en el bienestar económico de la sociedad, sino en el desarrollo de innovaciones que favorecen los negocios de las empresas transnacionales. Para completar este panorama, la contribución de Aboites Aguilar y Díaz Pérez presenta una imagen del grado de movilidad (fuga de cerebros) de inventores mexicanos en el ámbito de las ciencias duras. Los autores emplean las estadísticas de patentes de Estados Unidos para descubrir que las entidades de I+D del extranjero tienen más capacidad de incorporar a los inventores mexicanos que las propias empresas, universidades e instituciones nacionales. Esto, entre cosas, revela serios fallos en las políticas de retención de las instancias gubernamentales, las cuales destinan recursos considerables para formar investigadores de alto nivel que acaban trabajando en el extranjero y dejan de fortalecer al sistema mexicano de innovación.

Los capítulos anteriores muestran nítidamente las implicaciones (y complicaciones) del cambio tecnológico y la innovación en el contexto mexicano. Sin embargo, el libro no se limita a presentar una visión nacional del problema. Se complementa con una tercera sección de aportaciones de carácter regional y sectorial. En el capítulo octavo, Sánchez Juárez y García Almada exhiben el rezago nacional y las enormes diferencias regionales en materia de Ciencia, Tecnología e Innovación (CTI). Para ello utilizan diversas estadísticas como las «patentes triádicas» obtenidas por mexicanos y el índice de CTI del Foro Consultivo Científico y Tecnológico. Mientras tanto, el aporte de Ranfla y Batiz, así como el artículo de Almaraz, se centran en las dinámicas económicas del norte de

México. El primero describe la configuración empresarial de 4 zonas metropolitanas de Baja California y Chihuahua, el rol de la subcontratación en su desempeño económico, la fuerte dependencia hacia EE. UU., y la necesidad de fortalecer el desarrollo industrial en los estados colindantes. El segundo analiza el desarrollo de la industria maquiladora en Tijuana, enfatizando la necesidad de establecer estrategias efectivas de transmisión y aprendizaje tecnológico para garantizar la permanencia del conocimiento y los procesos de innovación. Por último, Vera Martínez y Simón Domínguez describen la participación de las empresas mexicanas en la cadena global de la industria del cemento, particularmente el caso de Cemex, así como los retos que esta empresa ha tenido que superar para cumplir con la Iniciativa de Sostenibilidad del Cemento, la cual implica un importante cambio en los procesos productivos para reducir los contaminantes y mejorar su eficiencia.

Finalmente, considero pertinente señalar algunos fallos puntuales. A mi parecer, la primera parte del volumen presenta un desequilibrio en la disposición de los capítulos, una condición que no demerita la calidad de los trabajos, pero implica cierto rompimiento en la estructura del libro. Asimismo, se extrañan unas conclusiones globales que articulen las distintas aportaciones. Más aún cuando es evidente que varios autores realizan un diagnóstico similar sobre las causas que han enraizado el atraso económico y la dependencia tecnológica del país: la certeza de que las políticas en materia de tecnología e innovación han sido erróneas, desfasadas o inapropiadas. Como advierten Sánchez y Almada: «toda estrategia implementada en el pasado deja evidentes dudas, y cualquier propuesta presentada hoy por las autoridades debe ser vista con recelo y sentido crítico» (p. 292). Las aportaciones de este libro, entonces, constituyen una valiosa y pertinente llamada para que se busque el desarrollo económico sobre la base de un inteligente cambio tecnológico.

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Gregory Clark (with Neil Cummins, Yu Hao, and Daniel Diaz Vidal). *The Son Also Rises: Surnames and the History of Social Mobility*. Princeton (New Jersey), Princeton University Press, 2014, XII + 364 págs., ISBN: 978-0-691-16254-6.

Have elite parents always bred elite children? This question is at the core of *The Son Also Rises*, Greg Clark's recent contribution to the Princeton Economic History of the Western World series. *The Son Also Rises* follows on from his controversial and provocative (some might even say notorious) *Farewell to Alms* in 2007. Here the attention is focused on the distribution of economic opportunities over the long-run in many of the world's largest nations and societies. Surnames are used to generate evidence of intergenerational outcomes of both global and historic scope. By comparing the frequency of elite names to more common names in occupations such as medicine, law, or other indicators of society's highest economic strata, Clark (and various collaborators on working papers that underpin several chapters) compute the extent to which identified elites are overrepresented in top jobs. The results are striking – wherever around the globe Clark is able to look, for any period where data is available, there is a large, persistent, bias favouring established elites over the course of centuries. In Sweden, the Leijonhufvuds dominate entry into medicine in 2000 much as they did

in 1900; in England, names linked to medieval land holding (like Beauchamp) remain strikingly over represented among Oxbridge students at the end of the twentieth century; Brahmin and Samurai families maintain their leading positions in India and Japan. The empirical results presented in many chapters are striking in their consistency. While surnames are an imperfect instrument for elite identity and intergenerational transmission, few readers will come away doubting the reported patterns of relative representation.

One of Clark's central arguments is that conventional measures of income mobility consistently overstate the true extent of change in underlying economic status to a much larger extent than previously thought. I am willing to believe that this is true, but found it hard to properly evaluate this claim, at least from the evidence shown here. I agree that long-run evidence of group status is a solution of sorts for issues of measurement error in the prior literature, but it was less clear what to make of generational correlations based on imputed status from a narrow strata of elite positions. The technical explanations in Appendix 3 give a sense of how indices of over-representation are transformed into intergenerational correlations, but not in enough detail, at least for this reader, to evaluate firmly based only what is published in the book.

The later chapters delve into discussions that are likely to be contentious to many readers: the role of genetic inheritance

in shaping economic outcomes. Clark's take is that the extremely strong persistence of leading families in the highest rungs of the economic ladder can ultimately be explained by little else; the intergenerational correlations and indices of representation in almost all societies examined are strikingly unaffected by the emergence of publicly funded education, legislative changes designed to improve the fortunes of particular ethnic or social groups, or even history's greatest social upheavals, as experienced in China over the second half of the twentieth century. This will make grim reading for historians and social scientists who value the role of social policy or human agency, and this perspective does not sit particularly well with recent studies that emphasize the substantial impact of early life interventions on long-run outcomes.

While not a geneticist, I also suspect that Clark's perspective will trouble those with expertise in that field too. Recent studies in evolutionary biology have, at least to the eyes of this non-expert, shifted understanding of the connection between nurture and nature due to the role of epigenetic mechanisms and behavioural inheritance, in which early life and pre-birth conditions themselves shape preferences and even genetic development. If elite and middle income families provide environments in which certain genes are more likely to «switch on», then there would seem plenty of scope for nurture to retain a leading role even in environments with low income inequality, or where elites suffer significant shocks to wealth and current material living conditions.

The Son Also Rises includes delightful, entertaining examples of families with remarkably high persistence of social status. The descendents of Charles Darwin and Samuel Pepys feature prominently, among others. These examples are a wonderful way for Clark to make his point. But tracing the lineage of these families also makes clear the difficulty of separating genetic inheritance from nurture – these families by and large maintained environments that

fostered economic success over the generations. There is no counterfactual presented where the Darwin or Pepys families gave up reading books or lively conversation in the home. Even in societies where revolutions impoverished elites, it is entirely possible that the maintenance of behaviour and environments associated with success favoured successive generations, perhaps through epigenetic mechanisms outlined above. While evidence from adopted children is presented as an example of the dominance of genetic factors, it is also true that this group is particularly likely to suffer the in utero and early life insults that matter for later life outcomes.

As *The Son Also Rises* is firmly focused on the very long run, many readers will wonder how to fit the findings with what is arguably most important long-run development in the world economy: the emergence of modern economic growth. A dynastic world of strong intergenerational persistence in status will appeal to stylised models of a pre-modern economy where long-run economic growth is absent, but the stability of these patterns during the shift to a world where successive generations are significantly better off than their parents are harder to understand.

This review probably captures how many will react to this book: the evidence on surname patterns in elite positions is compelling and impressive in scope, but I found it hard to accept all of the explanations offered for these findings. As a consequence, I thought a lot more about the subject matter than I anticipated before reading the book. Whether or not you ultimately agree with Clark, *The Son Also Rises* makes for stimulating reading, and I recommend it.

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