

Spain's good news

Last month finally brought good news for science in Spain. Newly elected prime minister Pedro Sánchez named Spanish astronaut and aeronautical engineer Pedro Duque as head of a new Ministry for Science, Innovation, and Universities. This will hopefully put Spanish research and development (R&D) back on the country's political agenda after two legislatures in which science languished under the Ministry of Economy. Given the minority position of the ruling party in both chambers of Congress, Duque will face extraordinary challenges to increase the budget. But the creation of this new ministry is an encouraging first step.

Over the past 7 years, Spain has suffered from insufficient R&D spending, setting its entire scientific enterprise back by two decades. In 2016, R&D represented only 1.2% of the gross domestic product (GDP), compared to 2% for the European Union; half of this was accounted for by the private sector. During this decline, most public research institutions were left nearly bankrupt [including the Spanish National Research Council (with 139 centers), the Spanish Institute of Oceanography, the Carlos III Health Institute, and the Research Centre for Energy, Environment and Technology (CIEMAT)]. Research projects became paralyzed by new bureaucratic processes; scientific talent thinned out dramatically; employment declined to precarious levels (plagued by irregular short-term contracts); and the average age of tenured academics increased to 53 years. From 2010 to 2014, Spain lost 27,358 R&D jobs—had funding been maintained at 2009 levels, about 61,940 such jobs would have been created.

Sadly, the previous Spanish government's vision of how R&D can change the economy was seriously flawed—it underestimated the importance of basic research, oversimplified knowledge transfer, minimized the time needed to bring ideas to market, and ignored how public investment attracts private investment. The new Sánchez government must move away from this ill-conceived model. Spain's prosperity will only come about through

innovations based on the generation of new knowledge. Relying on the private sector to achieve the 2020 target of 3% GDP investment in R&D (proposed by the European Union in 2000) while drastically reducing public investment is unrealistic.

The creation of Spain's new Ministry for Science, Innovation, and Universities acknowledges the important role of basic research and the synergy that should exist between research and higher education in the sciences.

It should be further supported by the inclusion of universities in Spain's Science, Technology and Innovation Law (to strengthen research at a national level) and by concrete measures to encourage mobility between research and educational institutions. The latter should include addressing the role of the National Agency for Quality Assessment and Accreditation in feeding academic inbreeding in Spanish universities (affecting 70% of professors; less than 2% are foreigners).

The new government certainly needs to invest more in R&D, but there are urgent measures that can be implemented quickly that require more political will than funding. These include ending bureaucratic processes imposed by the former Ministry of Finance

on all research activities (contracts, procurements) that have paralyzed the system; spending all appropriated R&D funds (only 50% has been spent so far); ending the year-long delays on announcing calls for research; ending limitations on continually renewing contracts (unavoidable with the current 3-year grant system); exempting research-related contracts from lengthy competitive bidding processes; and ending the Prior Intervention Requirement that prevents research institutions from executing their budgets (some institutions have reported 50% losses). These practices were intended to sequester R&D funds to reduce spending.

The previous government compromised Spain's future by creating a deficit in innovation and discovery. Spain can no longer be trapped in this failed economic model.

— Amaya Moro-Martín



Amaya Moro-Martín is an astrophysicist and treasurer of the Spanish Association for the Advancement of Science. amayamoromartin@gmail.com



Madrid Innovation Campus, Villaverde district, Madrid, Spain.

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Amaya Moro-Martín

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