

How to Stay in Science: A Theorist Perspective

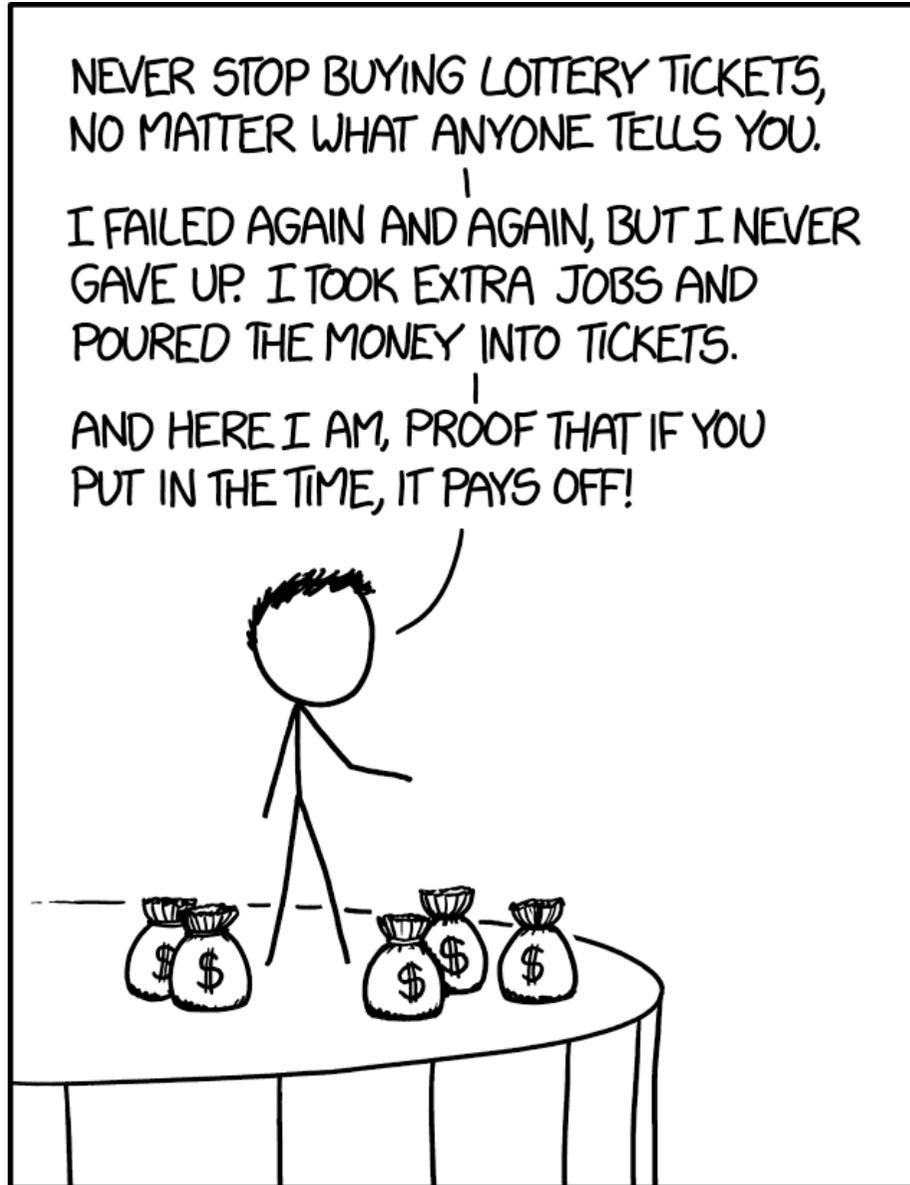
Juan Rojo

Nikhef workshop “How to Stay in Science”

Organized by the Nikhef PhD Council

Zoom, 28th May 2021

Disclaimer



EVERY INSPIRATIONAL SPEECH BY SOMEONE
SUCCESSFUL SHOULD HAVE TO START WITH
A DISCLAIMER ABOUT SURVIVORSHIP BIAS.



Always beware of selection and survivorship biases!

How to Stay in Science - my own path

What you read in my CV:

🎓 **2006:** PhD in theoretical physics @ Barcelona

🎓 **2006-2013:** postdoc @ Paris, Milan, CERN

🎓 **2013:** ERC StG, STFC Rutherford fellowship

🎓 **2014-2016:** Junior faculty @ Oxford

🎓 **2016 - now:** staff at VU & Nikhef

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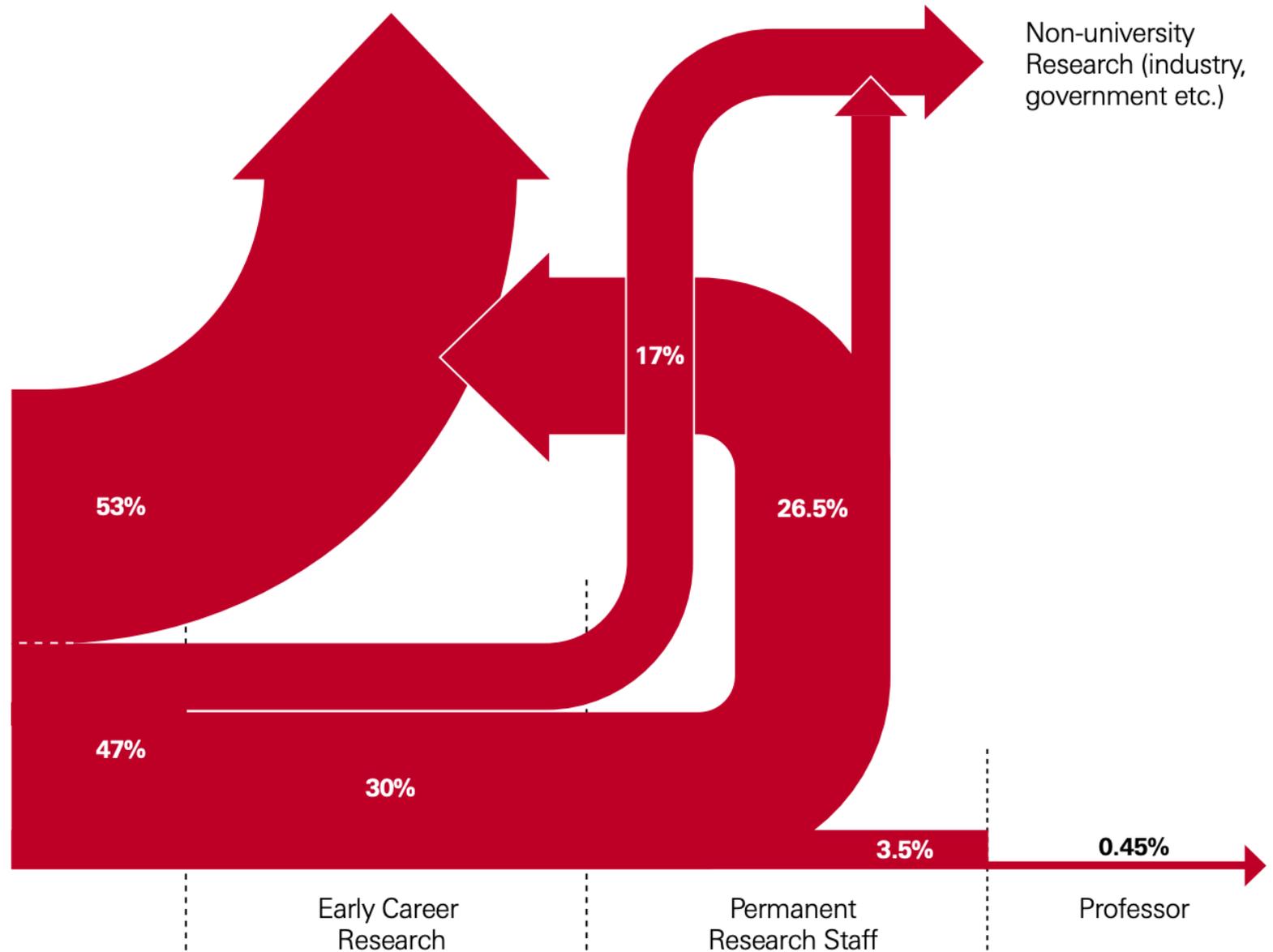
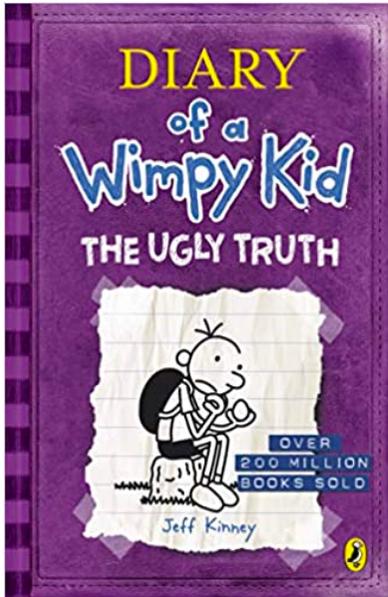
What you don't read in my CV (but maybe should)

- 👤 Children born in **2006** (one month before PhD defense) and **2010** (during second postdoc)
- 👤 Two-body problem (physicist wife, material sciences)
- 👤 O(4) years with family living in different countries (in many configurations)
- 👤 **2005:** O(100) postdoc applications, only one last-minute offer
- 👤 **2008, 2010, 2013:** contracts ending within few months without guaranteed job afterwards

+ long string of rejections in grant and job applications

The ugly truth

Careers outside science



UK numbers, but order of magnitude true for other countries

How to Stay in Science - Do's and Do Not's

To Do

- 📌 Find your niche: you should be known as the **expert** of something

To avoid at all cost

- 📌 **Dilute** your research portfolio and do too many things at the same time

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- 📌 Gain experience in teaching, supervision, mentoring, writing, ... be a good citizen!

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- 📌 Gain experience in teaching, supervision, mentoring, writing, ... be a good citizen!
- 📌 Generate output that demonstrates your scientific productivity (papers, code, internal notes, invited talks)

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- 📌 Be a one-trick pony (unless you are extremely good at that trick!)
- 📌 Isolate yourself, lack of interactions and integration in the host groups
- 📌 Work on problems that do not generate output, leaving too many projects unfinished

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To Do

- 📌 Develop a **long-term vision**: what are the big questions in my field and how can I contribute to addressing them?

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- 📌 Follow exclusively the vision/plans of others, display **lack of originality and innovation**

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- 📌 **Work hard**, but also play hard: take care of yourself and your personal life / relations (and forget about FOMO!)

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- 📌 Become a workaholic whose job determines all aspects of their life

How to Stay in Science - Do's and Do Not's

- 📌 There are an **infinite number of ways** in which one can become a successful scientist, you should find your own!
- 📌 Forget about what other people have done before, or how successful they are (**kill the impostor syndrome!**): walk your own path (ask me for practical tips about this)
- 📌 Play to your **own strengths**: focus on what you do best, and exploit it to your benefit. Each scientist is unique, you don't "need" to have this or that skill
- 📌 Never stop **enjoying science and having fun**

and remember, leaving science is never a "defeat": for many people, it is the right choice to an exciting and fully satisfactory career

Warmup for the AMA

🗣️ Some people spend many post-docs and research fellowships before finally giving up on a career in science and moving into industry

Bad idea! After a first postdoc your added value for industry jobs decreases exponentially

🗣️ How does the pursuit of a post-doc affect your chances of landing a job outside of academia? Is there a hard limit you should set yourself in terms of the number of post-docs you pursue before moving elsewhere?

One postdoc helps, specially if used to train skills valuable in academia (coding, ML, data science)

🗣️ How does the fraction of HEP PhDs that end up with a permanent position in academia evolve over time? Is there a trend visible? How does it look like if you include research positions in industry?

more or less constant, but #(postdoc years) tends to increase

🗣️ Are there regional differences? E.g. USA vs. Europe?

TT hires in the US are typically younger (but then real risk of not getting tenure)

🗣️ In terms of career chances in industry, are post-docs a value or a hinderance? Is there any concrete data on this?

Anecdotal evidence strongly suggests that a postdoc has added value depending on skills and training (e.g. publications, talks irrelevant there)

🗣️ Do you think job hunting in academia has changed from when you had to apply?

Soft skills e.g. communication, grant writing are becoming more and more crucial

Questions?

