

# Using the Movie *Joy* to Teach Innovation and Entrepreneurship\*

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## Abstract

Film and video clips have been used in the classroom to bring economic concepts to life. We use the 2015 film *Joy* to animate Joseph Schumpeter's *The Theory of Economic Development*, a foundational text on the theory of innovation and entrepreneurship that remains relevant for students today. We outline Schumpeter's theory of innovation and entrepreneurship and connect it to various scenes in *Joy* that illustrate the key points Schumpeter seeks to make. Beyond its value as a teaching tool for making sense of Schumpeter's often dense prose, we argue teaching *Joy* can also have a positive effect for undergraduate women in economics through its strong female protagonist.

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# 1 Introduction

The use of film and video clips in the classroom brings economic concepts to life, showing students that economics exists in and is relevant for the world around them. Teaching with film and video clips provides many additional benefits, ranging from aiding student retention, motivating interest in the subject, and increasing the efficiency of learning (Mateer and Stephenson 2011). This paper describes how the movie *Joy* can be used to teach central concepts related to the theory of innovation and entrepreneurship in economics. Given the importance economists attach to innovation and entrepreneurship, coupled with evidence that these ideas remain undertaught (Diamond 2007, Gwartney 2012, Phipps, Strom, and Baumol 2012), our paper helps fulfill a need by providing instructors with an engaging example for teaching innovation and entrepreneurship.

Released in 2015 and starring the actress Jennifer Lawrence as the title-character, *Joy* is a biographical film that roughly follows the life of serial entrepreneur Joy Mangano. An airline booking agent, Joy is the sole earner for four generations of her family. Frustrated with her impoverished circumstances and eager to pursue her inventing ambitions, Joy designs the Miracle Mop, a self-wringing mop that is substantially more durable and absorbent than prior designs. She recruits her father's wealthy girlfriend to invest in the production of the first mops. Joy initially struggles to sell the product but earns a lucky break when she meets QVC executive Neil Walker, who agrees to sell her mops on TV. The product's first appearance on TV is a flop; the pitchman fails to demonstrate her mop properly. Once Joy appears on QVC herself to sell her product, however, the mop is a roaring success. While ramping up production of her mop to meet expanded demand, Joy is constantly strapped for credit and is defrauded by her manufacturer and sister. By the end of the film, Joy is a successful and wealthy businesswoman who sponsors other female inventors. Viewers of the movie *Joy* experience an in depth look at the technical, market, and personal challenges associated with carrying out successful innovation and being an entrepreneur.

As we argue in this paper, *Joy* provides a great example of Joseph Schumpeter's theory of innovation and entrepreneurship as first laid out in 1911 in his book *The Theory of Economic Development*, and, as such, *Joy* shows the continued relevance of Schumpeter's theory as an

introduction to the study of innovation and entrepreneurship.<sup>1</sup> We, therefore, begin by briefly describing the three main components required to construct Schumpeter's theory. These include Schumpeter's notion of innovation as new combinations, the role of credit in bringing innovations to market, and the entrepreneur as an economic agent. Our description can be used as the basis for class notes and a jumping off point for classroom discussion for those interested in teaching innovation and entrepreneurship. We then use Schumpeter's theory as a lens through which to view the movie *Joy*, discussing how different scenes illustrate different parts of the theory and, thus, how the scenes can be used to teach various aspects of innovation and entrepreneurship in the classroom. We then delve deeper into the mechanics of how to implement teaching *Joy*, including discussion of sample assignments. Although we think viewing the movie in its entirety provides a more complete view of innovation and entrepreneurship, the scenes can still be used separately for smaller modules. We use minute marks throughout the paper to easily identify the scenes for classroom use. In either case, *Joy* provides students with a vivid real world example of innovation and the entrepreneurial process.

Beyond its use for teaching innovation and entrepreneurship, the movie *Joy* may also be of interest for encouraging undergraduate women to major in economics or take more economics classes. Men major more in economics by a margin of three to one in the United States, and the Undergraduate Women in Economics Challenge, an RCT currently in the field, is exploring policy interventions at the department and course levels designed to increase women's interest in economics (Avilova and Goldin 2018). According to Avilova and Goldin (2018), one set of policies in the RCT is designed to make instructional content and presentation styles more relevant to a wider range of students. Given the strong female protagonist, using the movie *Joy* to teach innovation and entrepreneurship may be a small scale example of this type of policy. Carrell, Page, and West (2010) shows professor gender has a large effect on female students' performance and continuation in math and science classes. Porter and Serra (forthcoming) shows exposing students to successful and charismatic women who majored in economics at the same university

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<sup>1</sup>*The Theory of Economic Development* was first published in German in 1911. The standard English translation appeared in 1934 (Schumpeter 1934) and is still available in cheap paperback form. Becker, Knudsen, and Swedberg (2012) provides a detailed retrospective on the influence of Schumpeter's book over the first one hundred years since its publication. Dalton and Gaeto (2019) shows citations to *The Theory of Economic Development* have increased as a share of total citations to all works by Schumpeter, increasing from 32% to 46% over the years 2003 to 2017. This increasing share is occurring as the total number of citations to Schumpeter is increasing, so citations to *The Theory of Economic Development* are increasing in an absolute sense as well.

had a significant impact on the likelihood that female students would major in economics. This role model effect, albeit on screen and not in person, is the idea we have in mind when thinking about the appeal of the movie *Joy* to women studying economics.

This paper contributes to a large and growing pedagogical literature on film and video clips in economics. Leet and Houser (2003) and Sexton (2006) provide discussions of many different clips covering a large number of topics in economics. Gillis and Hall (2010) and Luccasen and Thomas (2010) also use clips to explore a large number of topics in economics but take their examples from one particular television show, *The Simpsons*. Other papers focus on particular areas of economics, including creative destruction (Diamond 2009), public choice (Mateer and Stephenson 2011), and game theory (Burke, Robak, and Stumph 2018). Mateer and Li (2008) and Mateer, Ghent, and Stone (2011) provide online catalogs of numerous film and TV clips for use in teaching economics. Lastly, Mateer, O’Roark, and Holder (2016) describes the ten best films for teaching economics based on a survey of economic educators.

## **2 Schumpeter’s Theory of Innovation and Entrepreneurship**

Schumpeter’s theory of economic development has three interrelated components: (1) the creation of innovations (what Schumpeter (1934, p. 65) coins “new combinations”), (2) the use of credit to finance the large scale production and sale of those innovations, and (3) the entrepreneur: an individual whose energy and dynamism is rivaled only by Schumpeter’s conception of the economy writ large. To Schumpeter, development is not a linear process driven by the gradual accumulation of capital. Rather, development is the result of innovation, such as the introduction of new goods, production techniques, markets, supply sources, and organizational methods, that disrupts and grows the economy, what Schumpeter would later term creative destruction, and enables tremendous increases in the standard of living. Because innovation requires the use of the existing means of production, credit markets play an important role in providing access to these resources. At the heart of Schumpeter’s theory lies the entrepreneur – the person who conceives and brings to market the innovations that make economic devel-

opment possible. Schumpeter dedicates a substantial portion of Chapter 2 of *The Theory of Economic Development* to describing the unique psychology of entrepreneurs, laying out the characteristics they must possess in order to overcome the many obstacles that prevent the introduction of new combinations. As such, it is only appropriate that our paper focus on Joy, a young female entrepreneur who struggles with and eventually overcomes many of the barriers Schumpeter describes to bring her product – a self-wringing mop – to market. The following sections will discuss each of the three components of Schumpeter’s theory in greater depth and highlight examples from *Joy* that illustrate them.

### **3 Joy as an Example of Schumpeter’s Theory**

#### **3.1 New Combinations**

Schumpeter (1934, p. 66) defines development as “...the carrying out of new combinations.” He further identifies five types of new combinations: (1) the introduction of a new good or quality of good, (2) the introduction of a new method of production, (3) the opening of a new market, (4) the discovery of a new source of supply, and (5) the carrying out of a new organization of an industry.

What is Joy’s new combination? Early scenes of the film (6:10-6:25) reveal that Joy is a tinkerer, always coming up with new inventions that solve problems in her day-to-day life, such as a dog collar designed to eliminate fleas and not choke the dog. Unsuccessful until the events shown in the film, Joy’s breakthrough new combination comes after she cuts her hands from wringing glass out of a mop. Not only was the cheap wooden mop she was using bad at absorbing the wine and glass from a cracked wine bottle, but she had to wring the mop with her own hands – a dangerous prospect when the mop head is full of sharp glass shards. With bandaged hands and newfound determination to put her tinkering abilities to use, Joy invents a self-wringing plastic mop with a powerfully absorbent head made from a continuous loop of 300 feet of cotton. The mop-head also has the ability to detach and be cleaned in the washing machine. Scenes that describe Joy’s creation of this new combination are found from 36:10-36:34 and more fully at 1:00:00-1:01:10.

Note that Schumpeter’s definition of development is broader than the introduction of a new good. Joy’s new combination also introduces a new method of production. The scene from 46:25-47:06 demonstrates Joy’s decision to hand-spin the cotton mop head with a special swivel machine that she designed – a production technique that allowed for the rapid processing of 300 feet of cotton yarn while ensuring quality control. Finally, the method by which her mop was successfully advertised was a new combination in itself. From 54:30-1:00:10 and from 1:03:34-1:06:30, the film introduces Joy’s relationship with QVC, a free-to-air television shopping network that was emerging as a serious rival to traditional window retail shopping. She successfully advertises on QVC from 1:16:30-1:20:51, catapulting her product to success.

*Joy* is an effective teaching tool for Schumpeter’s definition of innovation as new combinations because it demonstrates that the Schumpeterian new combination is much broader than just the creation of a new product. Schumpeter’s definition also encompasses a variety of other activities that typically do not immediately leap to students’ minds when they think about innovation, but yet also increase total factor productivity and drive economic development.

### 3.2 Credit

The Schumpeterian new combination is not an innovation until it is brought to market. As such, access to capital – in the form of credit – is critical in bringing inventions, like Joy’s self-wringing mop, to market, transforming them into the innovations that drive economic development. As Schumpeter (1934, p. 70) notes, “... talent in economic life ‘rides to success on its debts’...,” and this is especially true for Joy.

As a single mother with four generations of dependents and a live-in ex-husband, Joy is financially strapped and lacks the funds necessary to bring her invention to market. This is where Schumpeter observes that the credit creation process comes in. Joy seeks and successfully secures credit twice during the film. The first time is from 39:50-42:35 when she pitches her product to her father’s wealthy girlfriend, named Trudy, in the hopes of receiving a loan to finance the production of the first units. In this particularly dramatic scene, Joy’s whole support structure – her father, her best friend, her sister, and her ex-husband all huddle with Trudy as Joy demonstrates her mop. Impressed, Trudy asks a series of dramatized questions that nonetheless illustrate the seriousness of the credit-lending process. Trudy is faced with an asymmetric

information problem common in credit markets; while she has faith in the product, she does not know whether Joy has the hunger and ruthlessness to ensure her product succeeds and makes a good return on Trudy's investment. Her questions culminate in one particularly dramatic and over the top moment at 41:48 where Trudy asks Joy to imagine she is locked in a room with an adversary in commerce, separated by a table with a gun on it. Only one person can prevail. "Do you pick up the gun, Joy?," Trudy asks.<sup>2</sup> While this is clearly a satirical scene, the seriousness of Trudy's question and Joy's affirmative response dramatically illustrate both the determination entrepreneurs must exhibit and the importance of credit for bringing new combinations to market. Without Trudy's loan, Joy's invention would be stillborn.

When Joy again goes to Trudy to ask for another loan to secure the production of an additional 10,000 mops to meet expected demand from her QVC advertising blitz, Trudy is faced with another problem common in credit markets – moral hazard. Wanting Joy to put it all on the line to ensure she fights for the success of the mop and, thus, her investment, Trudy demands Joy take out a second mortgage on her home from 1:07:10-1:07:20. When working to secure credit from "He [who] stands between those who wish to form new combinations and the possessors of productive means" (Schumpeter 1934, p. 74), Joy displays tenacity and a strong appetite for risk. She has laid everything on the line in a gamble that her mop succeeds, as the scene from 51:40-53:24 demonstrates when she comes home, bone tired, to a cut phone line, a pile of unpaid bills, a sick son, and a worrying grandmother. Despite these obstacles, Joy keeps her chin up and pushes on. As the next section will discuss, Schumpeter would be unsurprised, having already identified these special psychological characteristics of the entrepreneur.

### 3.3 The Entrepreneur

The entrepreneur is at the heart of Schumpeter's theory of innovation. Without entrepreneurs, there would be no innovations that would disrupt the circular flow of the economy and inject the economic dynamism that constitutes the crux of Schumpeter's work. Being an entrepreneur is difficult, however. Schumpeter argues the circular flow of the economy also applies to the

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<sup>2</sup>This seems like a good place to point out *Joy* is rated PG-13 for brief strong language. Although we think the movie is appropriate for classroom use, instructors should, of course, preview the movie and make their own determination. If the entire movie is not shown, there are still plenty of G-rated scenes throughout the movie which can be used to illustrate Schumpeter's theory of innovation and entrepreneurship.

lives of individuals – as humans, we become complacent in the comforting, predictable pattern of economic life. “Where the boundaries of routine stop,” writes Schumpeter (1934, pg. 80), “many people can go no further, and the rest can only do so in a highly variable manner.” As a result, Schumpeter (1934, pg. 81) continues, “. . . the carrying out of new combinations is a special function, and the privilege of a type of people who are much less numerous than all those who have the ‘objective possibility’ of doing it. . . . entrepreneurs are a special type, and their behavior a special problem. . . .”

Perhaps *Joy*'s greatest strength as a teaching device for Schumpeter's theory lies in its ability to bring the struggles of entrepreneurship to life in a classroom. At the start of the film, Joy is trapped in her own personal circular flow of work and extensive familial commitments. Joy faces a set of challenges common to single mothers like herself – not only does she work a full time job as an airline booking agent, but she is also raising two children by herself, helping in her father's repair-shop, and caring for her mother and grandmother.<sup>3</sup> As she explains to her father at the 34:30 minute mark, she has set aside her dreams and past inventions (like the dog collar described from 6:10-6:25) time and time again to swim with the circular flow.

Yet, as Schumpeter notes, the entrepreneur is a special kind of person – one that possesses the psychological characteristics necessary to step outside rhythm and routine and strive for success in business. From 34:30-35:15, Joy does exactly that, enlisting the family for whom she has provided for so long to turn her mop idea into a Schumpeterian new combination. Her daughter's crayons and creative mind help design the mop. Her father provides access to the means of production for those mops through the use of his machine shop. Her ex-husband becomes her trusted business partner and confidant. Despite her familial backing, however, Joy faces three broad categories of obstacles throughout the film. Schumpeter (1934, pp. 84-87) groups these obstacles into three categories: (1) the uncertainty of the economic and business landscape, (2) the entrepreneur's own subjective reluctance, and (3) resistance from the outside world to the entrepreneur's efforts. *Joy* contains a plethora of examples for all three.<sup>4</sup>

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<sup>3</sup>It is important to show students what is captured in Schumpeter's theory of entrepreneurship but also what is *not* captured. Joy provides not only an excellent example of an entrepreneur but a female entrepreneur, one facing challenges male entrepreneurs are unlikely to face, especially given her role as a mother. Schumpeter (1934) does not provide a separate discussion on female entrepreneurship, so this is an area instructors can explore with students during classroom discussion.

<sup>4</sup>Introducing Schumpeter's three categories of obstacles as a point of classroom discussion allows students to not only think about how *Joy* portrays these obstacles but also how the obstacles relate to students' own lives.

Joy faces a number of uncertainties that hinder the development of her product. First, the product space is uncertain; Joy does not know if her invention is already patented. Through her father's wealthy girlfriend, she enlists a patent lawyer to determine whether her mop is already on the market. Once her mop is created, Joy is unsure of how to sell the product. From 48:15-51:35, she experiments with storefronts, big retailers, and even hawks her wares outside a K-Mart parking lot. She also faces uncertainty about how many units to produce. Before her first appearance at QVC, Joy has no idea how successful her product will be and produces 10,000 mops – vastly more than are sold in her product's first TV appearance.

She also faces her own subjective reluctance to keep pushing on with her new combination. The scene from 51:42-53:00 puts her early failures in clear view for the audience. From deactivated phone lines to sick children to a twice mortgaged home, Joy is close to her breaking point without a single mop sold. This scene reinforces to Schumpeter's readers that entrepreneurship is a risky and difficult proposition and injects new meaning into Schumpeter's characterization of the entrepreneur as a "special type."

The biggest obstacles Joy encounters, however, are those arising from resistance from the outside world. These occur at each step of the entrepreneurial process; six are highlighted for this paper and should provide ample class discussion material. First, Joy's most difficult obstacle occupies much of the middle of the film. Pushing through a difficult boardroom pitch in a room full of men that do not take a mop toting woman very seriously, Joy's dogged conviction in the quality of her product finally secures interest and attention from Neil Walker of QVC. However, Todd, the QVC salesman, is embarrassingly unprepared to sell her mop at 1:09:30. His demonstration is a total flop; presumably he does not mop at home and is clearly unfamiliar with the form and function of Joy's innovative mop design. Thanks to Todd's incompetence, Joy's mop makes no sales – leaving her with 10,000 units of pre-produced inventory and zero demand for them. Over-leveraged and with no cash flow, Joy's business was on the verge of collapse until she took to the QVC stage herself to hawk her new combination to the public. Her first TV appearance is nearly a total disaster; Joy is a deer in the headlights frozen with stage fright until a friendly phone call shocks her into action. With some coaxing from Neil Walker,

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Asking students which category of obstacles they think would be the biggest challenge for them personally forces students to put themselves in the position of an entrepreneur and think more deeply about Schumpeter's ideas. Dalton and Logan (2019) provides a sample classroom dialogue for how a discussion of this type might unfold.

Joy turns out to be a brilliant TV saleswoman, and her mop becomes a roaring success.

Joy faces other obstacles as well before getting on QVC. The second obstacle we highlight occurs from 47:10-48:15 when Joy's California supplier overbills her for the plastic molds on her mops. Third, her early attempts to sell her products to major retail outlets fall flat at 48:30; without the designed obsolescence her mop avoids, big retail suppliers fear fewer units of inventory will be moved. Fourth, once she fails to sell her products to major retail outlets, she is reduced to illegally selling her mops on K-Mart property, which causes her to run into trouble with the police at 50:55.

Even after her product experiences success through QVC, the outside obstacles do not cease. Fifth, as explained from 1:28:00-1:29:20, family jealousy represents an existential threat to Joy's business. Her half-sister purposefully negotiates poorly on Joy's behalf with her manufacturer in order to tank the mop business and shift her father's attention and resources towards her own ideas. Sixth, the most threatening obstacle to Joy's business is shown in the scene from 1:30:20-1:35:00, where Joy discovers that her manufacturer has defrauded her – falsifying thousands of dollars in overcharges and copying Joy's product to undercut her business.

Schumpeter takes pains to describe the various obstacles entrepreneurs face in bringing their products to market – pains that scene after scene of *Joy* bring to life. So, what keeps the entrepreneur going? Schumpeter (1934, pp. 93-94) argues that entrepreneurs are primarily motivated by the “dreams of building a private kingdom,” by “the will to conquer,” and by “the joy of creating.” At various points throughout the film, Joy displays all three. As the film's name suggests, Joy is a perfect example of the entrepreneur's “joy of creating” – she derives intrinsic pleasure from the process of inventing. From the earliest scenes of the film, we see Joy creating her own paper toys (3:35-4:30), her dog collar (6:10-6:25), and her general handiness around the house (15:30-16:26). Joy is also motivated by the will to conquer. In a particularly dramatic scene at 41:48-42:34, she swears to use all means necessary to defeat her business rivals while negotiating with her creditor. Finally, we also see that Joy seeks to build a private kingdom. As the closing sequences of the film show, Joy finally has that private kingdom – a big house where her relatives are cared for and a thriving business that allows her and other single mothers like her to invent without the typical resource constraints.

## 4 Class Instructions for Teaching *Joy*

In this section, we provide further details on how to use *Joy* in the classroom. We begin by describing the actual experience of teaching *Joy* during an advanced undergraduate seminar on Joseph Schumpeter but then close with suggestions for using *Joy* in different types of courses.

The seminar on Joseph Schumpeter primarily covers his theories of innovation and entrepreneurship, creative destruction, and the debate over capitalism and socialism (see Dalton and Logan (2019) for further details on the course). The first half of the course focuses on innovation and entrepreneurship. As we have described, the movie *Joy* provides a good example of the different aspects of Schumpeter's theories, so the movie serves as a culminating assignment for this section of the course. Before viewing the movie, students read and discuss Chapter 2 of Schumpeter (1934), which is the key chapter outlining Schumpeter's theory of innovation and entrepreneurship.

Students watch *Joy* together in class and then discuss the movie in the context of Schumpeter's ideas. To help facilitate discussion, students are given the following list of questions on a handout to answer while watching the movie:

1. What were Joy's innovations, or Schumpeterian new combinations?
2. Describe the role played by credit in bringing Joy's innovations to market.
3. Is Joy a special kind of person, as Schumpeter argues an entrepreneur must be? Give examples.
4. What obstacles does Joy face when trying to bring her innovation to the market? Give examples of the three obstacles Schumpeter discusses.
5. What motivates Joy? Give examples of the three motivating factors Schumpeter discusses.

These questions are not listed in terms of their relevance chronologically throughout the movie but rather thematically. The questions coincide with how Schumpeter lays out his theory (recall the outline in Section 2 above) and how we discuss the movie throughout this paper. Question 1 and its answers coincide with our discussion in Section 3.1, question 2 with Section 3.2, and questions 3 through 5 with Section 3.3.

The last part of the assignment requires students to submit a written reflection piece (one half to one page long, single-spaced) on the movie. Students are asked to "...write about what you thought about the movie, how well you thought it illustrated Schumpeter's theory of innovation and entrepreneurship, what you thought of the class discussion, what you thought of the handout you were given during the movie, etc." This part of the assignment serves two purposes for the instructor. One, it tests how well students understand Schumpeter's theory and *Joy* as an example of that theory. Two, it provides feedback on the assignment in general, which can be used to refine the assignment in future courses. In the reflection pieces collected so far, students have been overwhelmingly positive about *Joy* as an example of Schumpeter's theory and seem to value the assignment as a good use of class time.<sup>5</sup>

Our description of how *Joy* has been used in an advanced undergraduate seminar on Schumpeter can be thought of as the "full version" of how an instructor might use the movie to teach innovation and entrepreneurship. We think the full version of using *Joy* in the classroom would also fit into upper level courses with a focus on innovation and entrepreneurship, such as an economic growth course, Austrian economics, or, even, history of economic thought. Indeed, one of the motivations for showing *Joy* in the Schumpeter seminar, which emphasizes history of thought through its use of primary sources, is to illustrate the continuing relevance of Schumpeter's theories for understanding contemporary economic issues.

Of course, we understand the full version of using *Joy* in the classroom presented here may not work for all instructors. For lower level classes, instead of having students read Chapter 2 of Schumpeter (1934), Schumpeter's theory could be introduced to students via class lectures. Likewise, the difficulty of the questions on the handout could vary. Instead of requiring students

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<sup>5</sup>Representative comments include the following: "I really liked the movie *Joy* and thought it was a great way of showing what Schumpeter believed to be the qualities of an entrepreneur and why the path to becoming an entrepreneur can sometimes be difficult."; "This movie posed a great opportunity to see another entrepreneur (and a female at that!) in action and understand the process which went behind her innovations."; "When Trudy becomes Joy's creditor, the final question that she asks her was interesting. She is asking her if she has the guts and is willing to take the risks that come with the journey of becoming an entrepreneur. She is testing Joy's competitive skills. While watching the film, it helped me understand more the role of a creditor."; "I thought that the handout provided was going to be a burden and take away from me enjoying the film. However, I found it incredibly useful in writing down my thoughts and ideas about how the movie pertained to large themes and minute details in our class."; and "The discussion that we had as a class was very insightful in better understanding the relation between Schumpeter's theory and the movie. There were some aspects of the movie that I did not even think related to Schumpeter's views. However, after the class discussion, some of these segments were very topical."

to remember the components of Schumpeter's theory and then identify examples of the theory in *Joy*, students could be given the theory and then asked to identify examples. Consider a rewritten version of question 4:

4. Schumpeter identifies three categories of obstacles entrepreneurs face: (1) the uncertainty of the economic and business landscape, (2) the entrepreneur's own subjective reluctance, and (3) resistance from the outside world to the entrepreneur's efforts. Identify the obstacles Joy faces when trying to bring her innovation to the market, and group them according to Schumpeter's categories.

Instructors who do not have enough class time for the full version but still want to use *Joy* to illustrate economic ideas discussed in class can show shorter clips. The minute marks throughout this paper can be used to identify scenes of interest. These scenes can be used in a variety of different ways. For example, short clips could be interspersed throughout a lecture on Schumpeter's theory of innovation and entrepreneurship. The discussion of innovation and entrepreneurship would then move back and forth between Schumpeter and *Joy*, using *Joy* to demonstrate different aspects of the theory. A third option beyond the full version or short clips is to show the extended clip from 33:38 to 42:35. This nine minute clip launches the second act of the movie and touches on all of the main aspects of Schumpeter's theory. Joy wakes up after reaching her breaking point with the burdens put upon her by her family and life's obligations (obstacles to entrepreneurship) and decides to make a change in her life by pursuing her childhood passion for inventing new things (the joy of creating as motivation for entrepreneurs). She successfully designs the prototype of her self-wringing mop (her innovation, or new combination) and pitches her idea to Trudy to secure funding (the importance of credit). This nine minute clip can be used in conjunction with a discussion of Schumpeter's theory in the classes we have described, but we believe it may also be of use in a general principles course where using the full version of the movie makes less sense. One logical place to introduce the nine minute clip to principles students would be after a discussion of the factors of production where entrepreneurship is often taught alongside labor, capital, land, etc. The clip has the added benefit that it illustrates other factors of production, in particular labor and capital.<sup>6</sup>

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<sup>6</sup>This is a suggestion. We have not yet successfully tried this idea in a principles course.

## 5 Conclusion

After the events depicted in the film *Joy*, Joy Mangano's private kingdom continued to grow. Defying gender norms, she went on to become a successful QVC saleswoman and eventually transitioned to HSN, where she became a partner with control over her products and sales. Joy did not stop inventing, either, and accumulated over 100 patents to her name, including Huggable Hangers, the best-selling product in HSN history. Her autobiography (Mangano 2017) describes how she smashed through the glass ceiling around sales and inventing, achieving success despite the male dominated nature of television advertising in the 1990s.

We have argued the movie *Joy* is useful for introducing students to the theory of innovation and entrepreneurship described by Schumpeter in *The Theory of Economic Development*. Using the film as a springboard for class discussion helps students better understand the nature of innovation, the role played by credit markets in bringing innovations to the market, and the entrepreneur as a specific type of economic agent. *Joy* brings these concepts to life through a vivid example highlighting the obstacles entrepreneurs face, some of which may be worse for female entrepreneurs in particular. We argue the strong female protagonist in *Joy* may have the added benefit as instructional content by encouraging women in economics, an idea that is closely related to policies being tested in the field (Avilova and Goldin 2018). Of course, the greater relevance of the microeconomics described in *Joy* is the centrality of these forces, and the dynamics they unleash, for explaining economic growth and, thus, increases in standards of living. Instructors can make this point as further motivation for why students should care about innovation and entrepreneurship.

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